

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Melanie Bissett Examiner #: 77899 Date: 1/16/03
 Art/Unit: 1711 Phone Number 303-653-39 Serial Number: 125/632749
 Mail Box and Bldg/Room Location: CPS 4035 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

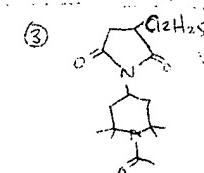
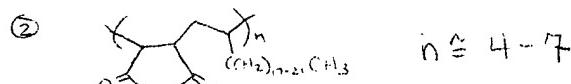
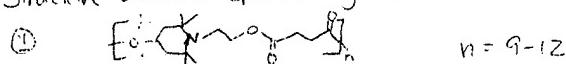
Title of Invention: Multilayer, weatherable compositions and method of manufacture

Inventors (please provide full names): Safwat Tadros, Peter Villenborg

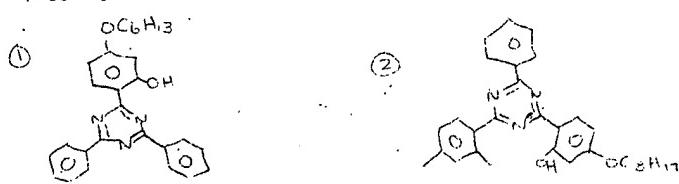
Earliest Priority Filing Date: 10/12/01

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Structural search of specific light stabilizers (HALS):

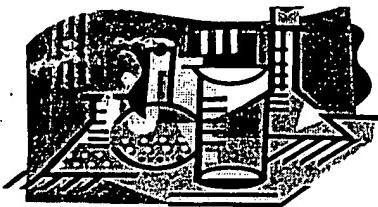


Also search UV absorbers:



STAFF USE ONLY

Type of Search	Vendors and cost where applicable
Searcher: <u>John O'Brien</u> NA Sequence (#)	STN <u>ft. 589: 621 (pg 3)</u>
Searcher Phone #:	AA Sequence (#) Dialog
Searcher Location:	Structure (#) Questel/Orbit
Date Searcher Picked Up: <u>1/22/03</u>	Bibliographic Dr.Link
Date Completed: <u>1/22/03</u>	Litigation Lexis/Nexis
Searcher Prep & Review Time: <u>70 min</u>	Fulltext Sequence Systems
Clerical Prep Time:	Patent Family WWW/Internet
Online Time: <u>90 min</u>	Other Other (specify)



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Search Results Feedback Form

The search results generated for your recent request are attached. If you have any questions or comments (compliments or complaints) about the scope or the results of the search, please contact the searcher whose name is circled below.

Kathleen Fuller 308-4290 John Calve 308-4139

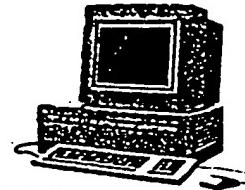
Barba Koroma 305-3542 Eric Linnell 308-4143

All searchers are located in the library in CP3/4 3D62

EIC1700

Search Results

Feedback Form (Optional)



Scientific & Technical Information Center

The search results generated for your recent request are attached. If you have any questions or comments (compliments or complaints) about the scope or the results of the search, please contact *the EIC searcher* who conducted the search *or contact:*

Kathleen Fuller, Team Leader, 308-4290, CP3/4 3D62

Voluntary Results Feedback Form

➤ I am an examiner in Workgroup:

Example: **1713**

➤ Relevant prior art found, search results used as follows:

- 102 rejection
- 103 rejection
- Cited as being of interest.
- Helped examiner better understand the invention.
- Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- Foreign Patent(s)
- Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art not found:

- Results verified the lack of relevant prior art (helped determine patentability).
- Search results were not useful in determining patentability or understanding the invention.

Other Comments:

M. Bissett

09/682,749

01/23/2003

Melanie,

I did two parent structures for your search: one corresponding to the triazine with the 3 aromatic rings attached (UV absorbers) and the other parent corresponding to the pyridine (HALS).

From the pyridine I did two subset searches: one for the polymer (first structure, you listed on your search form), and another subset search for the 2nd and 3rd compounds you listed the front of the search request form.

I then "and"ed the two sets together (L45) getting a total of 31 hits.

Thanks again for dropping by this morning. Your application gave a registry number, and 2 trade names for the HALS.

I found registry numbers for the 3 HALS (see L1-L3) and crossed those registry numbers "over" to HCA (Chemical Abstracts) and combined them with the hits for the UV absorbers. The first 19 answers in this printout (L54) include the reg. No./ trade names listed IN YOUR APPLICATION. The next 12 answers (L59) are the rest of the 31 answers.

John Melanie, one final note, I searched the structure for the uv absorber very broadly (not specifying any groups attached to the triazine)
Please feel free to call me at your convenience - it's much quicker and easier explaining it over the phone. 308-4139.
Because I was worried I wouldn't get many records except the authors, when I combined the UV absorber w/ the HALS.

John

FILE 'REGISTRY' ENTERED AT 10:06:40 ON 23 JAN 2003
E 65447-77-0/RN

L1 1 S E3
E UVINUL 5?/CN
L2 2 S E1-E2
E SANDUVOR 3?/CN
E SANDUVOR 30?/CN
L3 1 S E2

FILE 'HCA' ENTERED AT 10:08:25 ON 23 JAN 2003

L4 331 S L1
L5 12 S L2
L6 42 S L3
L7 385 S L4 OR L5 OR L6

FILE 'REGISTRY' ENTERED AT 11:36:25 ON 23 JAN 2003

L16 50 S L12
L17 25999 S L12 FULL
SAVE BIS749/A L17
L18 2 S L13 SSS SAM SUB=L17
L19 4 S L14 SSS SAM SUB=L17
L20 0 S L15
L21 STR L15
L22 50 S L21
L23 STR L18

M. Bissett

09/682,749

01/23/2003

L24 STR L14
L25 2 S L23 SSS SAM SUB=L17
L26 4 S L24 SSS SAM SUB=L17
L27 STR L23
L28 STR
L29 STR L24
L30 22 S L27 AND L28 SSS SAM SUB=L17
L31 SCR 2043
L32 11 S L27 AND L28 AND L31 SSS SAM SUB=L17
L33 4 S L29 SSS SAM SUB=L17

FILE 'LREGISTRY' ENTERED AT 12:20:59 ON 23 JAN 2003

L34 STR L29

FILE 'REGISTRY' ENTERED AT 12:22:29 ON 23 JAN 2003

L35 4 S L34 SSS SAM SUB=L17
L36 11 S L27 AND L28 AND L31 SSS SAM SUB=L17
L37 235 S L27 AND L28 AND L31 SSS FULL SUB=L17
SAVE BISS749A/A L37
L38 125 S L34 SSS FULL SUB=L17
L39 50 S L21
L40 QUE L21
L41 2168 S L21 FULL
SAVE L41 BISS2749/A
SAVE L38 BISS749B/A

FILE 'HCA' ENTERED AT 12:33:27 ON 23 JAN 2003

L42 900 S L37
L43 317 S L38
L44 1099 S L41
L45 31 S L44 AND (L42 OR L43)
L46 19 S L44 AND L7
L47 12 S L45 NOT L46
L48 7986 S HAL OR HINDER?(3N)LIGHT? OR HINDER?(2N)AMIN? OR AMIN?(2N)LIGH
L49 269080 S POLYESTER?
L50 3762445 S COMPOSIT? OR MIXTUR? OR BLEND? OR ADMIX? OR COMMIX? OR IMMIX?
L51 16 S L46 AND L48
L52 10 S L51 AND L50
L53 4 S L52 AND L49
L54 19 S L46 OR L51 OR L52 OR L53
L55 11 S L47 AND L48
L56 5 S L55 AND L49
L57 6 S L55 AND L50
L58 11 S L56 OR L57 OR L55
L59 12 S L58 OR L47

=> file reg

FILE 'REGISTRY' ENTERED AT 12:44:49 ON 23 JAN 2003
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
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Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 22 JAN 2003 HIGHEST RN 480390-21-4
DICTIONARY FILE UPDATES: 22 JAN 2003 HIGHEST RN 480390-21-4

M. Bissett

09/682,749

01/23/2003

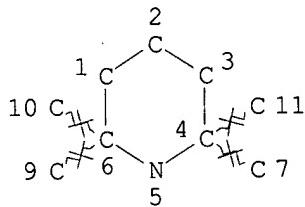
TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

Please note that search-term pricing does apply when conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP PROPERTIES for more information. See STNote 27, Searching Properties in the CAS Registry File, for complete details:
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

=> d que stat L37
L12 STR



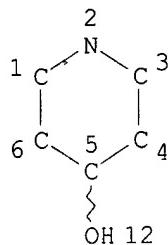
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NSPEC IS RC AT 9
NSPEC IS RC AT 10
NSPEC IS RC AT 11
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 10

STEREO ATTRIBUTES: NONE
L17 25999 SEA FILE=REGISTRY SSS FUL L12
L27 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE
L28 STR

O~^Ak~O
1 2 3

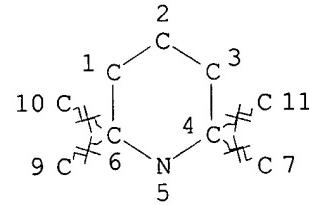
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DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 3

STEREO ATTRIBUTES: NONE
L31 SCR 2043
L37 235 SEA FILE=REGISTRY SUB=L17 SSS FUL L27 AND L28 AND L31

100.0% PROCESSED 2033 ITERATIONS 235 ANSWERS
SEARCH TIME: 00.00.01

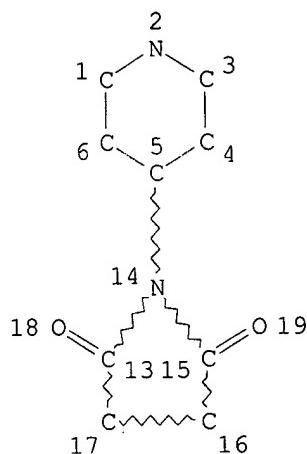
=> d que stat L38
L12 STR



NODE ATTRIBUTES:
NSPEC IS RC AT 7
NSPEC IS RC AT 9
NSPEC IS RC AT 10
NSPEC IS RC AT 11
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 10

STEREO ATTRIBUTES: NONE
L17 25999 SEA FILE=REGISTRY SSS FUL L12
L34 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 13

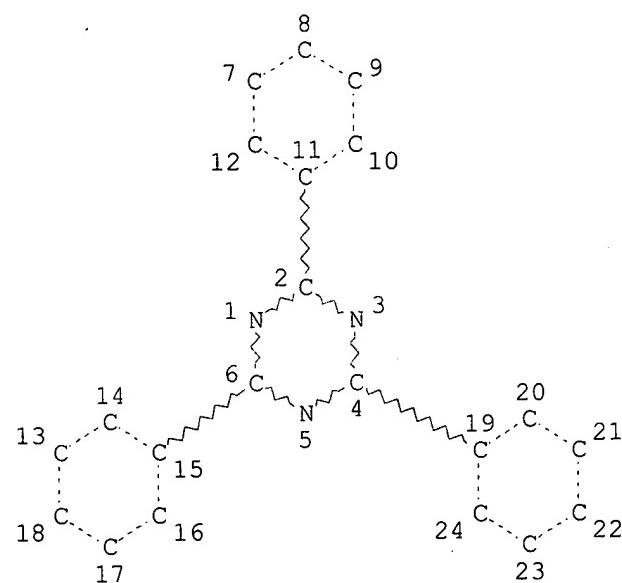
STEREO ATTRIBUTES: NONE

L38 125 SEA FILE=REGISTRY SUB=L17 SSS FUL L34

100.0% PROCESSED 128 ITERATIONS
SEARCH TIME: 00.00.01

125 ANSWERS

=> d que stat L41
L21 STR



NODE ATTRIBUTES:

biss749.trn

Page 5

John Calve, TC-1700, 308-4139

DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 24

STEREO ATTRIBUTES: NONE
L41 2168 SEA FILE=REGISTRY SSS FUL L21

100.0% PROCESSED 5151 ITERATIONS 2168 ANSWERS
SEARCH TIME: 00.00.20

=> file hca
FILE 'HCA' ENTERED AT 12:45:31 ON 23 JAN 2003
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FILE COVERS 1907 - 16 Jan 2003 VOL 138 ISS 4
FILE LAST UPDATED: 16 Jan 2003 (20030116/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d L54 1-19 cbib abs hitind hitstr

L54 ANSWER 1 OF 19 HCA COPYRIGHT 2003 ACS
137:338627 **Polymeric articles containing hindered amine**
stabilizers based on multi-functional carbonyl compounds. Sassi, Thomas
P. (USA). U.S. Pat. Appl. Publ. US 2002161075 A1 20021031, 40 pp..
Cont.-in-part of U.S. Ser. No. 704,840. (English). CODEN: USXXCO.
APPLICATION: US 2001-87266 20011025. PRIORITY: US 2000-704840 20001103.
AB Polymeric articles contg. at least one polymeric material and a sufficient amt. of at least one novel **hindered amine** stabilizers to inhibit at least one of photo- or thermal degrdn. The **hindered amine light** stabilizer may be a monomeric or an oligomeric **hindered amine light** stabilizer.
2,2,6,6-Tetramethylpiperidin-4-yl 6-(2,2,6,6-tetramethyl-4-piperidinoxy carbonyl amino)hexanoate was prep'd. and used in stabilization of polypropylene.
IC ICM C08K005-34
NCL 524099000
CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 42, 62, 74
ST **hindered amine** stabilizer

- IT Polyurethanes, preparation
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(acrylic; polymeric articles contg. **hindered amine** stabilizers based on multi-functional carbonyl compds.)
- IT Transparent materials
(coatings; polymeric articles contg. **hindered amine** stabilizers based on multi-functional carbonyl compds.)
- IT Polyimides, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyamide-; polymeric articles contg. **hindered amine** stabilizers based on multi-functional carbonyl compds.)
- IT Polyimides, properties
Polysulfones, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-; polymeric articles contg. **hindered amine** stabilizers based on multi-functional carbonyl compds.)
- IT Polyamides, properties
Polyethers, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyimide-; polymeric articles contg. **hindered amine** stabilizers based on multi-functional carbonyl compds.)
- IT Antioxidants
 - Cosmetics
 - Dyes
 - Heat stabilizers
 - Inks
 - Light stabilizers
 - Paper
 - Photographic paper
 - UV stabilizers
(polymeric articles contg. **hindered amine** stabilizers based on multi-functional carbonyl compds.)
- IT Alkyd resins
 - Aminoplasts
 - Epoxy resins, properties
 - Linear low density polyethylenes
 - Natural rubber, properties
 - Phenolic resins, properties
 - Polyamides, properties
 - Polycarbonates, properties
 - Polyesters, properties
 - Polyethers, properties
 - Polyimides, properties
 - Polyketones
 - Polyolefins
 - Polyoxymethylene, properties
 - Polyoxyphenylenes
 - Polysulfones, properties
 - Polythiophenylenes
 - Polyurethanes, properties
 - Synthetic rubber, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polymeric articles contg. **hindered amine** stabilizers based on multi-functional carbonyl compds.)
- IT Polyethers, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polysulfone-; polymeric articles contg. **hindered amine** stabilizers based on multi-functional carbonyl compds.)

- IT Acrylic polymers, preparation
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (polyurethane-; polymeric articles contg. **hindered amine** stabilizers based on multi-functional carbonyl compds.)
- IT Coating materials
 (transparent; polymeric articles contg. **hindered amine** stabilizers based on multi-functional carbonyl compds.)
- IT 74-85-1D, Ethene, polymers with .alpha.-olefins
 RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 (LLDPE; polymeric articles contg. **hindered amine** stabilizers based on multi-functional carbonyl compds.)
- IT 9003-53-6
 RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 (impact-resistant; polymeric articles contg. **hindered amine** stabilizers based on multi-functional carbonyl compds.)
- IT 439689-26-6P 439689-27-7P 439689-29-9P 439689-30-2P 439689-32-4P
 439689-33-5P 439689-35-7P 439932-78-2P 439932-82-8P 474043-45-3P
 RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)
 (polymeric articles contg. **hindered amine** stabilizers based on multi-functional carbonyl compds.)
- IT 225529-96-4P, DESMODUR N-3390-JONCRYL CDX-588 copolymer
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (polymeric articles contg. **hindered amine** stabilizers based on multi-functional carbonyl compds.)
- IT 13177-43-0P 70288-80-1P 92858-40-7P 439689-28-8P 439689-31-3P
 439689-37-9P 443678-52-2P 443678-53-3P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
 (polymeric articles contg. **hindered amine** stabilizers based on multi-functional carbonyl compds.)
- IT 106-89-8D, Epichlorohydrin, reaction products with 7,7,9,9-tetramethyl-2-cycloundecyl-1-oxa-3,8-diaza-4-oxospiro[4.5]decane 128-37-0, 2,6-Di-tert-butyl-4-methylphenol, uses 131-56-6, 2,4-Dihydroxybenzophenone 131-57-7, 2-Hydroxy-4-methoxybenzophenone 976-56-7, Diethyl-3,5-di-tert-butyl-4-hydroxybenzylphosphonate 1470-79-7 1668-53-7, 2-(2,4-Dihydroxyphenyl)-4,6-bis(2,4-dimethylphenyl)-1,3,5-triazine 1709-70-2, 1,3,5-Tris(3,5-di-tert-butyl-4-hydroxybenzyl)-2,4,6-trimethylbenzene 1843-03-4, 1,1,3-Tris(5-tert-butyl-4-hydroxy-2-methylphenyl)butane 1843-05-6, 2-Hydroxy-4-octyloxybenzophenone 2162-63-2, 2-Hydroxy-4-decyloxybenzophenone 2440-22-4, 2-(2'-Hydroxy-5'-methylphenyl)-benzotriazole 2725-22-6 2985-59-3, 2-Hydroxy-4-dodecyloxybenzophenone 3135-18-0, Dioctadecyl-3,5-di-tert-butyl-4-hydroxybenzylphosphonate 3147-75-9, 2-(2'-Hydroxy-5'-(1,1,3,3-tetramethylbutyl)phenyl)benzotriazole 3147-76-0 3147-77-1 3846-71-7 3864-99-1, 2-(3',5'-Di-tert-butyl-2'-hydroxyphenyl)-5-chlorobenzotriazole 3896-11-5 6079-76-1, 2-Hydroxy-4-benzyloxybenzophenone 6131-38-0 10176-09-7 13681-75-9 23128-74-7 23328-53-2 25973-55-1 27676-62-6, 1,3,5-Tris(3,5-di-tert-butyl-4-hydroxybenzyl)isocyanurate 32687-78-8 35958-30-6, 2,2'-Ethylidene-bis(4,6-di-tert-butylphenol) 36437-37-3 40075-75-0 40601-76-1 41556-26-7, Bis(1,2,2,6,6-pentamethylpiperidin-4-yl)sebacate 52829-07-9, Bis(2,2,6,6-tetramethylpiperidin-4-yl) sebacate 62782-03-0, Bis(2,2,6,6-tetramethylpiperidin-4-yl)succinate 63843-89-0 64022-57-7, Tris(2,2,6,6-tetramethylpiperidin-4-yl) nitrilotriacetate 64022-61-3, Tetrakis(2,2,6,6-tetramethylpiperidin-4-yl)-1,2,3,4-

butanetetracarbox ylate 64337-97-9 69851-61-2 70198-29-7,
 1-(2-Hydroxyethyl)-2,2,6,6-tetramethyl-4-hydroxypiperidine-succinic acid
 copolymer 70321-86-7 71029-16-8 72058-42-5 79720-19-7 82451-48-7
 82537-67-5, 8-Acetyl-3-dodecyl-7,7,9,9-tetramethyl-1,3,8-
 triazaspiro[4.5]decane-2,4-dione 83044-89-7 83044-90-0 83044-91-1
 84268-22-4 84268-23-5 84268-33-7 104564-32-1, 4-Stearyloxy-2,2,6,6-
 tetramethylpiperidine 106556-36-9, 2-(2-Hydroxy-4-methoxyphenyl)-
 4,6-diphenyl-1,3,5-triazine 106917-30-0 106917-31-1
 122586-52-1, Bis(1-octyloxy-2,2,6,6-tetramethylpiperidin-4-yl)sebacate
 122586-95-2 131290-55-6 131747-52-9 137658-77-6
 144757-53-9 145983-67-1 147315-50-2
148236-55-9 154825-62-4 168921-81-1
178905-31-2 214692-65-6 219991-91-0 222557-48-4
 474043-37-3 474043-38-4 474043-40-8 474043-41-9D, reaction products
 with epichlorohydrin 474043-42-0 474043-43-1
 474043-44-2

RL: MOA (Modifier or additive use); USES (Uses)

(polymeric articles contg. **hindered amine**
 stabilizers based on multi-functional carbonyl compds.)

IT 9003-08-1, Formaldehyde-melamine copolymer 9003-35-4,
 Formaldehyde-phenol copolymer 9003-54-7, SAN copolymer 9003-56-9, ABS
 copolymer 9004-36-8, Cellulose acetate butyrate 9011-05-6,
 Formaldehyde-urea copolymer 24938-67-8, PPO 25038-54-4, Nylon 6,
 properties 25085-53-4, PROFAX 6501

RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)

(polymeric articles contg. **hindered amine**
 stabilizers based on multi-functional carbonyl compds.)

IT 105-60-2, Caprolactam, reactions 111-11-5, Methyl caprylate 542-52-9,
 Dibutyl carbonate 553-90-2, Dimethyl oxalate 616-38-6,
 Dimethylcarbonate 2403-88-5, 2,2,6,6-Tetramethyl-4-piperidinol
 2403-89-6, 1,2,2,6,6-Pentamethyl-4-piperidinol

RL: RCT (Reactant); RACT (Reactant or reagent)

(polymeric articles contg. **hindered amine**
 stabilizers based on multi-functional carbonyl compds.)

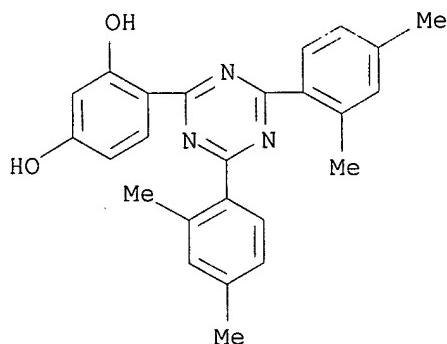
IT **1668-53-7, 2-(2,4-Dihydroxyphenyl)-4,6-bis(2,4-dimethylphenyl)-**
1,3,5-triazine 2725-22-6 13681-75-9
106556-36-9, 2-(2-Hydroxy-4-methoxyphenyl)-4,6-diphenyl-1,3,5-
triazine 106917-31-1 137658-77-6 144757-53-9
147315-50-2 148236-55-9 154825-62-4
168921-81-1 178905-31-2 214692-65-6
474043-42-0 474043-43-1

RL: MOA (Modifier or additive use); USES (Uses)

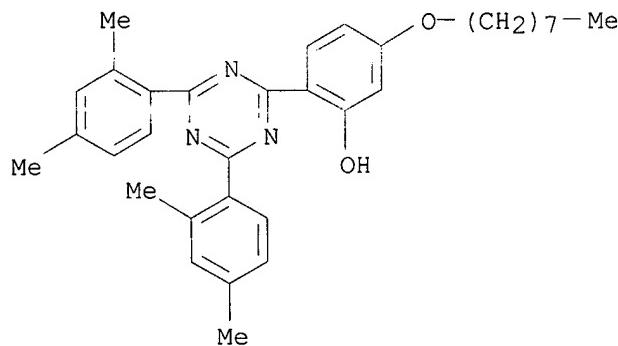
(polymeric articles contg. **hindered amine**
 stabilizers based on multi-functional carbonyl compds.)

RN 1668-53-7 HCA

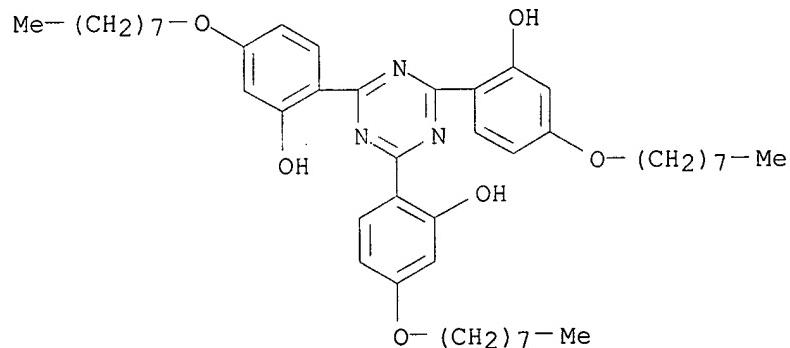
CN 1,3-Benzenediol, 4-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]- (9CI)
 (CA INDEX NAME)



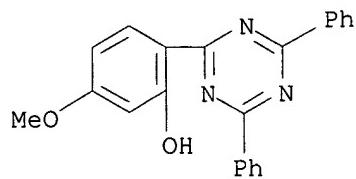
RN 2725-22-6 HCA
CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)-
(9CI) (CA INDEX NAME)



RN 13681-75-9 HCA
CN Phenol, 2,2',2''-(1,3,5-triazine-2,4,6-triyl)tris[5-(octyloxy)-
(9CI) (CA INDEX NAME)

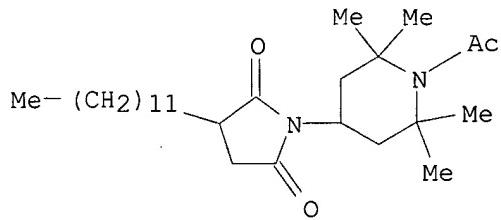


RN 106556-36-9 HCA
CN Phenol, 2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-methoxy- (9CI) (CA INDEX
NAME)



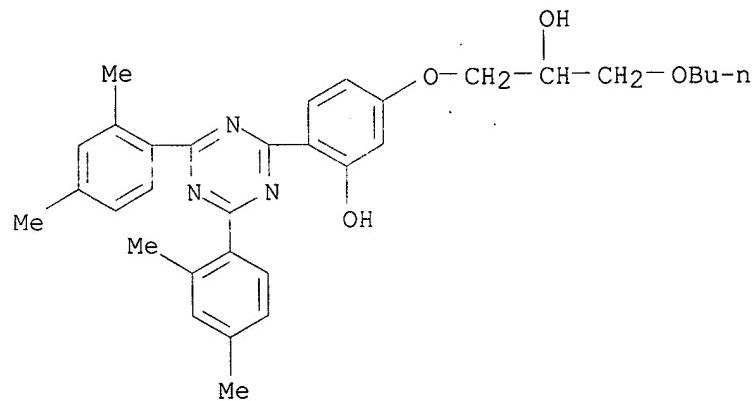
RN 106917-31-1 HCA

CN Piperidine, 1-acetyl-4-(3-dodecyl-2,5-dioxo-1-pyrrolidinyl)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

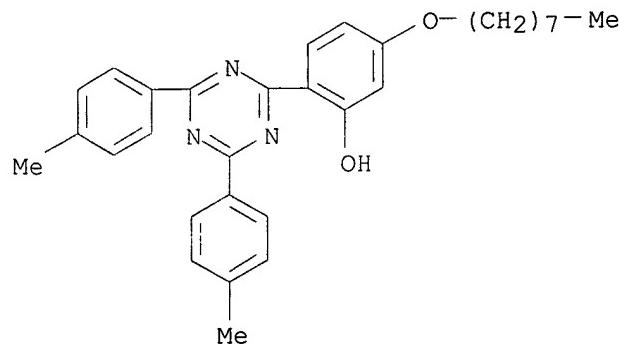


RN 137658-77-6 HCA

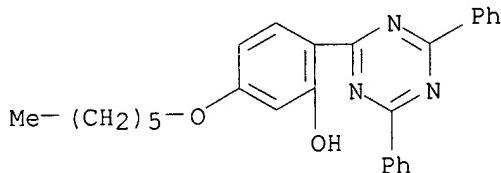
CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(3-butoxy-2-hydroxypropoxy)- (9CI) (CA INDEX NAME)



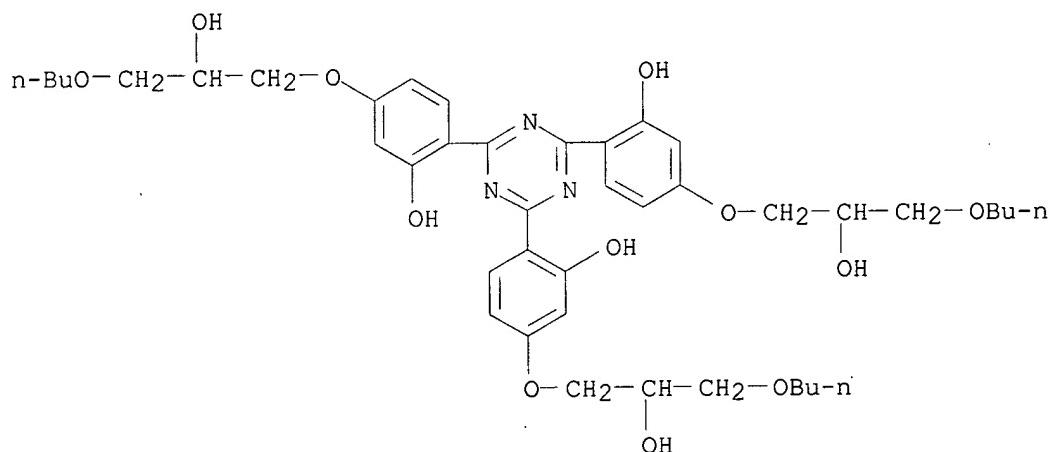
RN 144757-53-9 HCA

CN Phenol, 2-[4,6-bis(4-methylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)- (9CI)
(CA INDEX NAME)

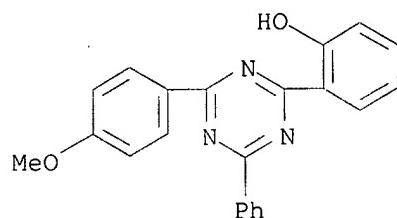
RN 147315-50-2 HCA
 CN Phenol, 2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-(hexyloxy)- (9CI) (CA INDEX NAME)



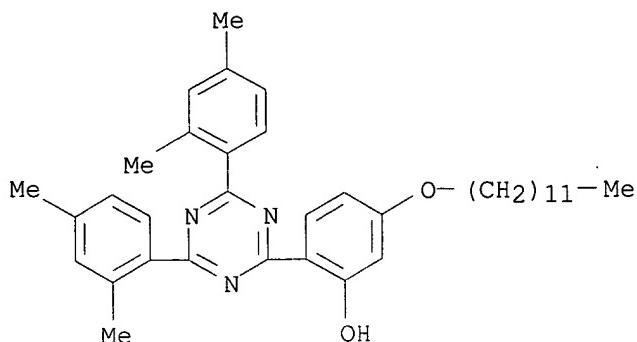
RN 148236-55-9 HCA
 CN Phenol, 2,2',2'''-(1,3,5-triazine-2,4,6-triyl)tris[5-(3-butoxy-2-hydroxypropoxy)- (9CI) (CA INDEX NAME)



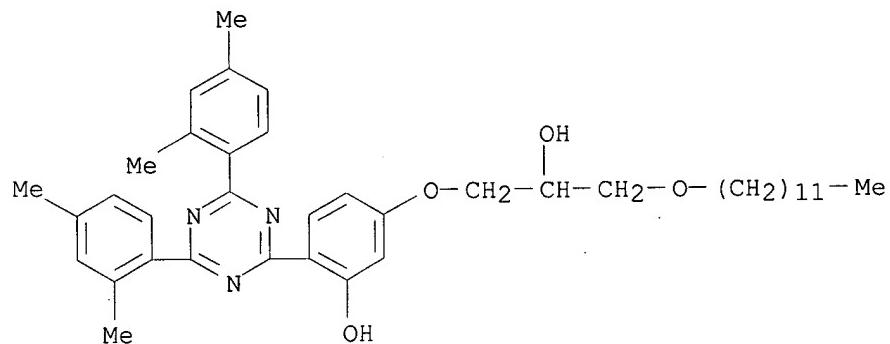
RN 154825-62-4 HCA
 CN Phenol, 2-[4-(4-methoxyphenyl)-6-phenyl-1,3,5-triazin-2-yl]- (9CI) (CA INDEX NAME)



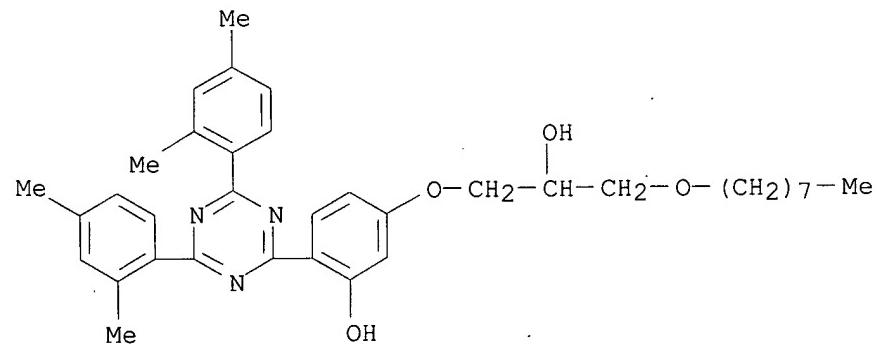
RN 168921-81-1 HCA
 CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(dodecyloxy)- (9CI) (CA INDEX NAME)



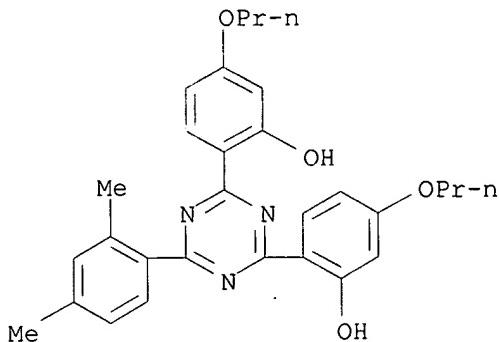
RN 178905-31-2 HCA
CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-[3-(dodecyloxy)-2-hydroxypropoxy]- (9CI) (CA INDEX NAME)



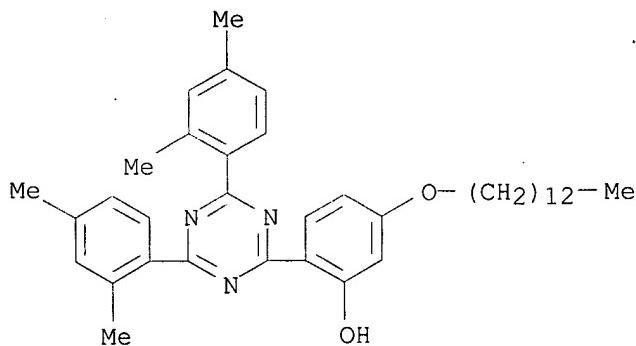
RN 214692-65-6 HCA
CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-[2-hydroxy-3-(octyloxy)propoxy]- (9CI) (CA INDEX NAME)



RN 474043-42-0 HCA
CN Phenol, 2,2'-(6-(2,4-dimethylphenyl)-1,3,5-triazine-2,4-diyl)bis[5-propoxy- (9CI) (CA INDEX NAME)]



RN 474043-43-1 HCA
 CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(tridecyloxy)-
 (9CI) (CA INDEX NAME)



L54 ANSWER 2 OF 19 HCA COPYRIGHT 2003 ACS
 137:295661 Candle wax stabilized with s-triazine and piperidine-based
hindered amine. Wood, Mervin Gale; Smith, Andrea R.;
 Judd, Deborah (Ciba Specialty Chemicals Holding Inc., Switz.). PCT Int.
 Appl. WO 2002079314 A1 20021010, 45 pp. DESIGNATED STATES: W: AE, AG,
 AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,
 DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN,
 IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,
 MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL,
 TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG,
 KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK,
 ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD,
 TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2002-EP3315 20020325.
 PRIORITY: US 2001-824197 20010402.

AB White, dyed, dipped, unscented and/or scented candle wax is effectively
 stabilized against discoloration and fading by the incorporation therein
 of an s-triazine UV absorber plus a classic hindered
amine and optional further components such as UV absorber and/or
 antioxidant. Thus, a pink scented candle wax was stabilized with
 2,4-bis[2-hydroxy-4-(3-butyloxy-2-hydroxypropoxy)phenyl]-6-mesityl-s-
 triazine 0.15% and bis(1,2,2,6,6-pentamethylpiperidin-4-yl) sebacate
 (Tinuvin 292) 0.15%, showing change in color value .DELTA.E of 3.02.

IC ICM C08K005-3492
 ICS C08K005-3435; C08L091-08

CC 37-6 (Plastics Manufacture and Processing)
 Section cross-reference(s): 45

ST candle wax stabilized triazine piperidine **hindered amine**

IT Polyolefins
RL: MOA (Modifier or additive use); USES (Uses)
(N-(2,2,6,6-tetramethylpiperidin-4-yl)maleimide contg. **hindered amine**; stabilization of candle wax using s-triazine and piperidine-based **hindered amine**)

IT Amine oxides
Nitrones
Phenols, uses
Phosphites
RL: MOA (Modifier or additive use); USES (Uses)
(antioxidant; stabilization of candle wax using s-triazine and piperidine-based **hindered amine**)

IT Waxes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(candle; stabilization of candle wax using s-triazine and piperidine-based **hindered amine**)

IT Amines, uses
RL: MOA (Modifier or additive use); USES (Uses)
(ditallow alkyl, **hindered amine**; stabilization of candle wax using s-triazine and piperidine-based **hindered amine**)

IT **Amines**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**hindered**, stabilizers; stabilization of candle wax using s-triazine and piperidine-based **hindered amine**)

IT Antioxidants
Candles
Discoloration prevention agents
Stabilizing agents
UV stabilizers
(stabilization of candle wax using s-triazine and piperidine-based **hindered amine**)

IT 65-85-0D, Benzoic acid, esters 69-72-7D, Salicylic acid, esters
95-14-7D, Benzotriazole, esters 119-61-9D, Benzophenone, esters
141-82-2D, Malonic acid, esters 620-81-5D, Oxanilide, derivs.
621-82-9D, Cinnamic acid, esters **2125-23-7D**,
2,4,6-Tris(2,4-dihydroxyphenyl)-s-triazine, reaction products with
isoctyl c(halopropionate **2725-22-6**, 2,4-Bis(2,4-dimethylphenyl)-
6-(2-hydroxy-4-octyloxyphenyl)-s-triazine 15802-18-3D, Cyanoacrylate,
.alpha.-derivs. 68928-75-6D, Propanoic acid, isoctyl ester,
.alpha.-halo derivs., reaction products with 2,4,6-tris(2,4-
dihydroxyphenyl)-s-triazine **147315-50-2**, 2,4-Diphenyl-6-(2-
hydroxy-4-hexyloxyphenyl)-s-triazine **173409-10-4**,
2,4,6-Tris[2-hydroxy-4-(3-sec-butyloxy-2-hydroxypropoxyphenyl]-s-
triazine **176843-45-1**, 2,4-Bis(2,4-dimethylphenyl)-6-(2-hydroxy-4-
hexyloxy-5-.alpha.-cumylphenyl)-s-triazine **178905-30-1**,
2,4-Bis[2-hydroxy-4-(3-butyloxy-2-hydroxypropoxyphenyl]-6-mesityl-s-
triazine **178905-31-2**, 2,4-Bis(2,4-dimethylphenyl)-6-[2-hydroxy-4-
(3-dodecyloxy-2-hydroxypropoxyphenyl]-s-triazine **178905-32-3**
197030-06-1, 2-Phenyl-4-[2-hydroxy-4-(3-sec-butyloxy-2-
hydroxypropoxyphenyl]-6-[2-hydroxy-4-(3-sec-amyoxy-2-
hydroxypropoxyphenyl]-s-triazine **208343-47-9**
250348-78-8, 2,4,6-Tris(2-hydroxy-4-isooctyloxycarbonylisopropylid-
eneoxyphenyl)-s-triazine **304671-49-6**,
2,4-Bis(4-biphenyl)-6-(2-hydroxy-4-octyloxycarbonylethylideneoxyphenyl)-
s-triazine **304671-51-0**, 2,4-Bis(2,4-dimethylphenyl)-6-[2-hydroxy-
4-(3-benzyl-2-hydroxypropoxyphenyl]-s-triazine **336110-75-9**

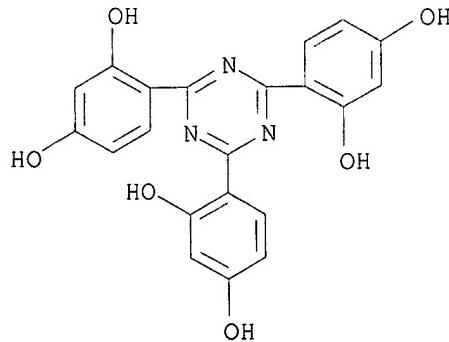
, 2,4-Bis(2,4-dimethylphenyl)-6-[2-hydroxy-4-(3-octyloxy-2-hydroxypropoxy)-5-cumylphenyl]-s-triazine 336110-77-1,
 2,4-Bis(2,4-dimethylphenyl)-6-[2-hydroxy-4-(3-nonyloxy-2-hydroxypropoxy)-5-.alpha.-cumylphenyl]-s-triazine 353296-01-2,
 2,4-Bis(2,4-dimethylphenyl)-6-[2-hydroxy-4-(3-dodecyloxy-2-hydroxypropoxy)-5-.alpha.-cumylphenyl]-s-triazine 353296-02-3
 RL: MOA (Modifier or additive use); USES (Uses)
 (UV absorber; stabilization of candle wax using s-triazine and piperidine-based **hindered amine**)
 IT 7803-49-8D, Hydroxylamine, derivs.
 RL: MOA (Modifier or additive use); USES (Uses)
 (antioxidant; stabilization of candle wax using s-triazine and piperidine-based **hindered amine**)
 IT 106-89-8D, Epichlorohydrin, reaction products with 2,2,4,4-tetramethyl-7-oxa-3,20-diaza-21-oxodispiro[5,1,1,1,2]heneicosane 2403-88-5D,
 4-Hydroxy-2,2,6,6-tetramethylpiperidine, C15-C17 alkyl ethers 5395-50-6D, Tetramethylolacetylenediurea, reaction products with 4-amino-2,2,6,6-tetramethylpiperidine 26275-88-7, 4-Benzoyloxy-2,2,6,6-tetramethylpiperidine 36768-62-4D, 4-Amino-2,2,6,6-tetramethylpiperidine, reaction products with tetramethylolacetylenediurea 41556-26-7, Tinuvin 292 52829-07-9, Bis(2,2,6,6-tetramethylpiperidin-4-yl)sebacate 61269-61-2, 4,4'-Hexamethylenebis-(amino-2,2,6,6-tetramethylpiperidine)-1,2-dibromoethane copolymer 63843-89-0 64022-57-7, Tris(2,2,6,6-tetramethylpiperidin-4-yl)nitriilotriacetate 64022-61-3, Tetrakis(2,2,6,6-tetramethylpiperidin-4-yl)1,2,3,4-butanetetracarboxylate 67845-92-5, Octamethylene bis(2,2,6,6-tetramethylpiperidin-4-carboxylate) 70198-29-7, 1-(2-Hydroxyethyl)-2,2,6,6-tetramethyl-4-hydroxypiperidine-succinic acid copolymer 72058-42-5, 2,4-Dichloro-6-tert-octylamino-s-triazine-4,4'-hexamethylenebis(amino-2,2,6,6-tetramethylpiperidine) copolymer 73936-91-1, Tinuvin 928 79720-19-7, N-2,2,6,6-Tetramethylpiperidin-4-yl-n-dodecylsuccinimide 82451-48-7 82537-67-5, Tinuvin 440 84268-23-5, Tinuvin 384 84540-25-0D, N-(2,2,6,6-Tetramethylpiperidin-4-yl)maleimide, polymers with C20-C24-.alpha.-olefin 91788-83-9 104564-32-1, 4-Stearyoxy-2,2,6,6-tetramethylpiperidine 106917-30-0, N-1,2,2,6,6-Pentamethylpiperidin-4-yl-n-dodecylsuccinimide 106917-31-1, N-1-Acetyl-2,2,6,6-tetramethylpiperidin-4-ylndodecylsuccinimide 124172-53-8, 1,6-Hexamethylenebis[N-formyl-N-(2,2,6,6-tetramethylpiperidin-4-yl)amine] 131290-55-6, 2,4-Dichloro-6-cyclohexylamino-s-triazine-4,4'-hexamethylenebis(amino-2,2,6,6-tetramethylpiperidine) copolymer 144923-25-1, 1,3,5-Tris[3-(2,2,6,6-piperidin-4-ylamino)-2-hydroxypropyl]isocyanurate 162068-62-4, 1,3-Di(1,2,2,6,6-pentamethylpiperidin-4-yl)2,4-ditridecyl butanetetracarboxylate 162068-67-9, 1,3-Di(2,2,6,6-tetramethylpiperidin-4-yl)2,4-ditridecyl butanetetracarboxylate 164578-16-9 173043-43-1, Silanediol, methyl[3-(2,2,6,6-tetramethyl-4-piperidinyl)propyl]-, homopolymer 187405-04-5, 1,10-Diamino-4,7-diazadecane-2,4-dichloro-6-[N-butyl-N-(2,2,6,6-tetramethylpiperidin-4-yl)amino]-s-triazine copolymer 192662-79-6, Tinuvin 400 468772-66-9, Ethyl acrylate-methyl methacrylate-2,2,6,6-tetramethylpiperidin-4-yl acrylate copolymer 468772-67-0, N-Octadecylmaleimide-styrene-N-(2,2,6,6-tetramethylpiperidin-4-yl)maleimide 468772-68-1, 3,9-Bis(1,1-dimethyl-2-hydroxyethyl)-2,4,8,1-O-tetraoxaspiro[5.5]undecane-tetramethyl 1,2,3,4-butanetetracarboxylate-2,2,6,6-tetramethyl-4-hydroxypiperidine copolymer
 RL: MOA (Modifier or additive use); USES (Uses)
 (**hindered amine** stabilizer; stabilization of candle wax using s-triazine and piperidine-based **hindered amine**)
 IT 164648-93-5
 RL: MOA (Modifier or additive use); USES (Uses)

(stabilization of candle wax using s-triazine and piperidine-based hindered amine)

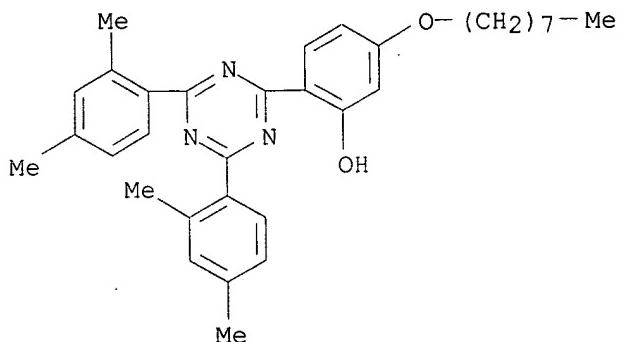
IT 2125-23-7D, 2,4,6-Tris(2,4-dihydroxyphenyl)-s-triazine, reaction products with isoctyl c(halopropionate 2725-22-6, 2,4-Bis(2,4-dimethylphenyl)-6-(2-hydroxy-4-octyloxyphenyl)-s-triazine 147315-50-2, 2,4-Diphenyl-6-(2-hydroxy-4-hexyloxyphenyl)-s-triazine 173409-10-4, 2,4,6-Tris[2-hydroxy-4-(3-sec-butyloxy-2-hydroxypropoxy)phenyl]-s-triazine 176843-45-1, 2,4-Bis(2,4-dimethylphenyl)-6-(2-hydroxy-4-hexyloxy-5-.alpha.-cumylphenyl)-s-triazine 178905-30-1, 2,4-Bis[2-hydroxy-4-(3-butyloxy-2-hydroxypropoxy)phenyl]-6-mesityl-s-triazine 178905-31-2, 2,4-Bis(2,4-dimethylphenyl)-6-[2-hydroxy-4-(3-dodecyloxy-2-hydroxypropoxy)phenyl]-s-triazine 178905-32-3 197030-06-1, 2-Phenyl-4-[2-hydroxy-4-(3-sec-butyloxy-2-hydroxypropoxy)phenyl]-6-[2-hydroxy-4-(3-sec-amyoxy-2-hydroxypropoxy)phenyl]-s-triazine 208343-47-9 250348-78-8, 2,4,6-Tris(2-hydroxy-4-isooctyloxycarbonylisopropylideneoxyphenyl)-s-triazine 304671-49-6, 2,4-Bis(4-biphenyl)-6-(2-hydroxy-4-octyloxy carbonylethylideneoxyphenyl)-s-triazine 304671-51-0, 2,4-Bis(2,4-dimethylphenyl)-6-[2-hydroxy-4-(3-benzyl-2-hydroxypropoxy)phenyl]-s-triazine 336110-75-9, 2,4-Bis(2,4-dimethylphenyl)-6-[2-hydroxy-4-(3-octyloxy-2-hydroxypropoxy)-5-cumylphenyl]-s-triazine 336110-77-1, 2,4-Bis(2,4-dimethylphenyl)-6-[2-hydroxy-4-(3-nonyloxy-2-hydroxypropoxy)-5-.alpha.-cumylphenyl]-s-triazine 353296-01-2, 2,4-Bis(2,4-dimethylphenyl)-6-[2-hydroxy-4-(3-dodecyloxy-2-hydroxypropoxy)-5-.alpha.-cumylphenyl]-s-triazine 353296-02-3

RL: MOA (Modifier or additive use); USES (Uses)
(UV absorber; stabilization of candle wax using s-triazine and piperidine-based hindered amine)

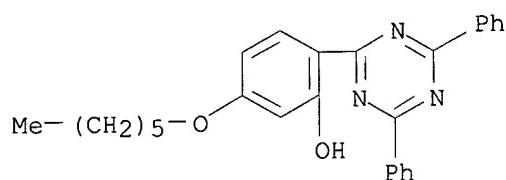
RN 2125-23-7 HCA
CN 1,3-Benzenediol, 4,4',4''-(1,3,5-triazine-2,4,6-triyl)tris- (9CI) (CA INDEX NAME)



RN 2725-22-6 HCA
CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)- (9CI) (CA INDEX NAME)

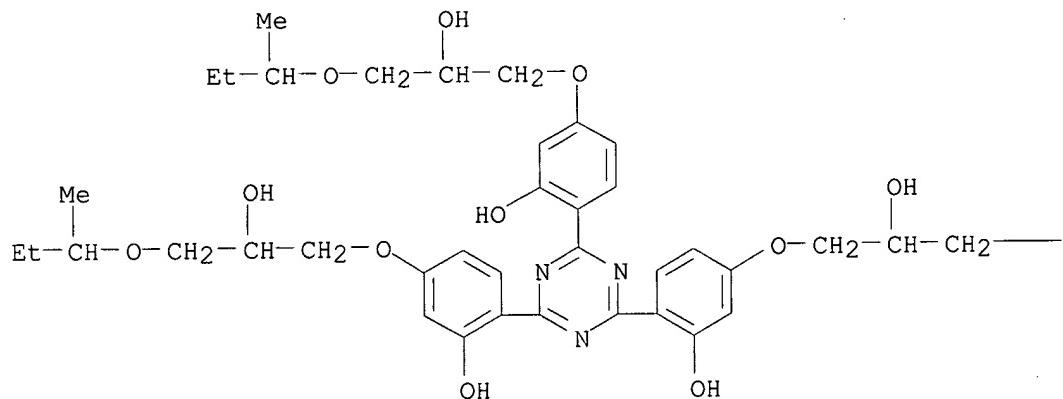


RN 147315-50-2 HCA
 CN Phenol, 2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-(hexyloxy)- (9CI) (CA INDEX NAME)

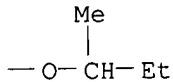


RN 173409-10-4 HCA
 CN Phenol, 2,2',2''-(1,3,5-triazine-2,4,6-triyl)tris[5-[2-hydroxy-3-(1-methylpropoxy)propoxy]- (9CI) (CA INDEX NAME)

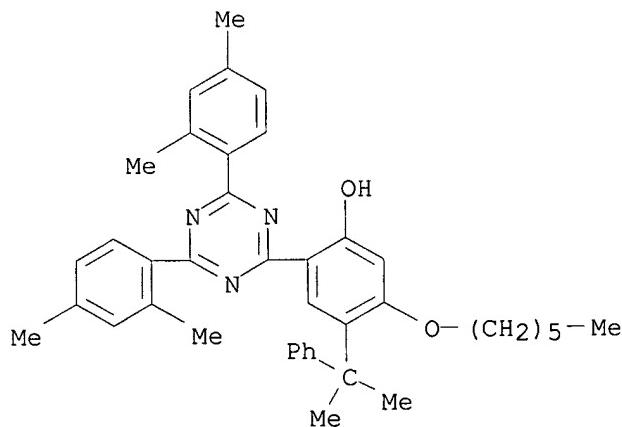
PAGE 1-A



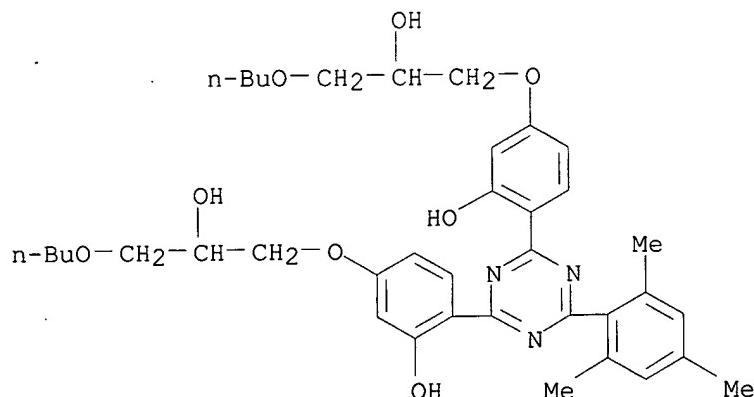
PAGE 1-B



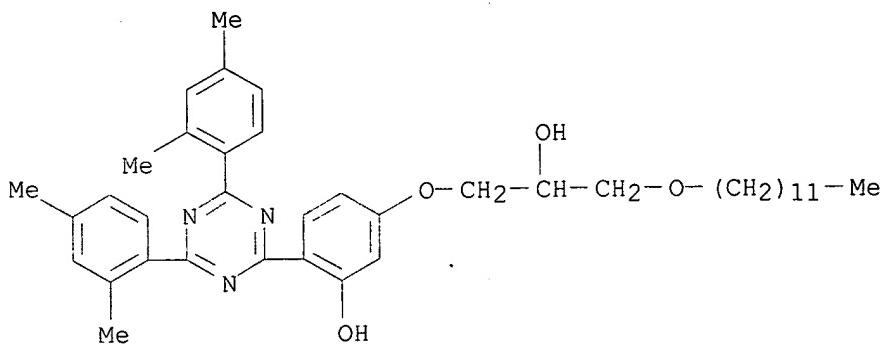
RN 176843-45-1 HCA
 CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(hexyloxy)-4-(1-methyl-1-phenylethyl)- (9CI) (CA INDEX NAME)



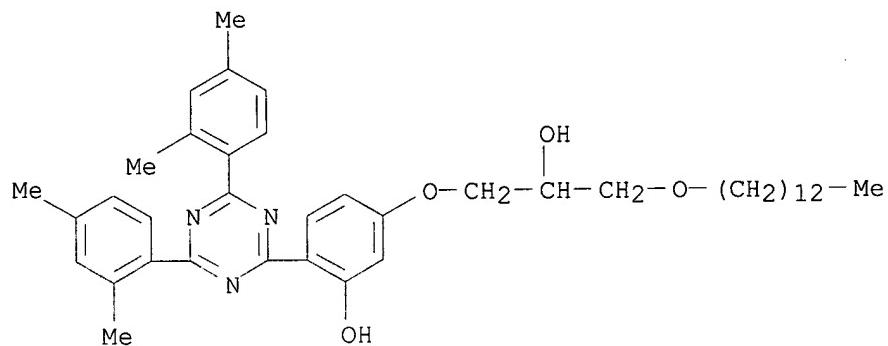
RN 178905-30-1 HCA
 CN Phenol, 2,2'-[6-(2,4,6-trimethylphenyl)-1,3,5-triazine-2,4-diyl]bis[5-(3-butoxy-2-hydroxypropoxy)- (9CI) (CA INDEX NAME)



RN 178905-31-2 HCA
 CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-[3-(dodecyloxy)-2-hydroxypropoxy]- (9CI) (CA INDEX NAME)

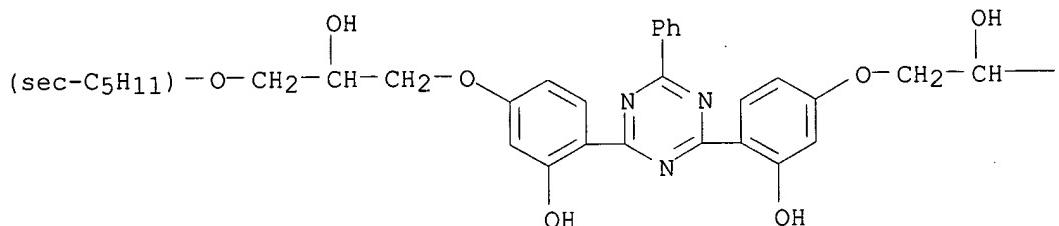


RN 178905-32-3 HCA
 CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-[2-hydroxy-3-(tridecycloxy)propoxy] - (9CI) (CA INDEX NAME)

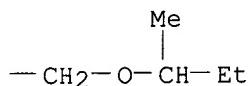


RN 197030-06-1 HCA
 CN Phenol, 2-[4-[2-hydroxy-4-[2-hydroxy-3-(1-methylpropoxy)propoxy]phenyl]-6-phenyl-1,3,5-triazin-2-yl]-5-[2-hydroxy-3-(sec-pentyloxy)propoxy] - (9CI) (CA INDEX NAME)

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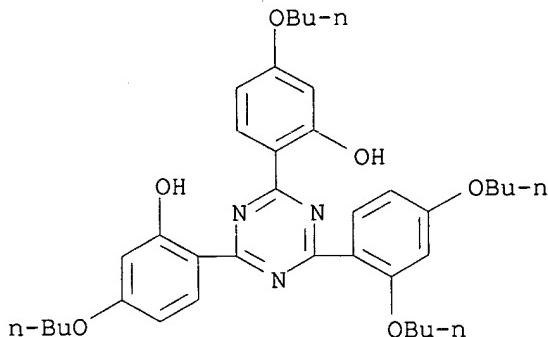


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RN 208343-47-9 HCA
 CN Phenol, 2,2'-[6-(2,4-dibutoxyphenyl)-1,3,5-triazine-2,4-diyl]bis[5-butoxy-

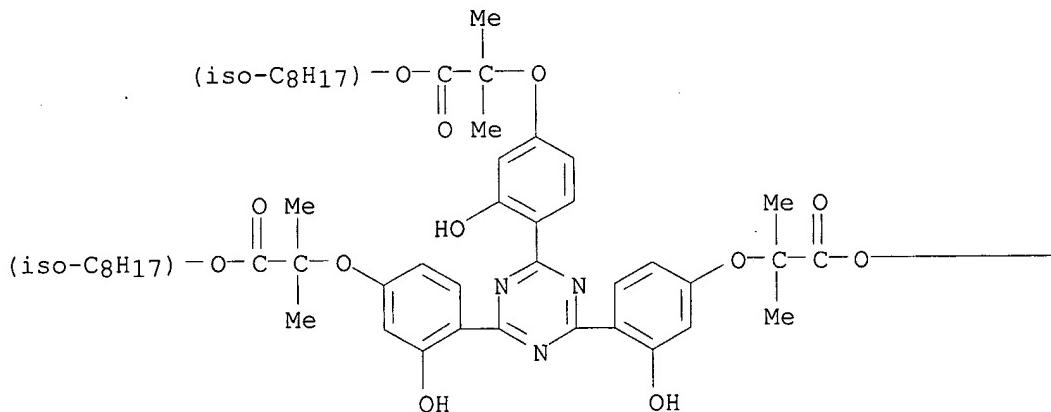
(9CI) (CA INDEX NAME)



RN 250348-78-8 HCA

CN Propanoic acid, 2,2',2'''-[1,3,5-triazine-2,4,6-triyltris[(3-hydroxy-4,1-phenylene)oxy]]tris[2-methyl-, triisooctyl ester (9CI) (CA INDEX NAME)

PAGE 1-A

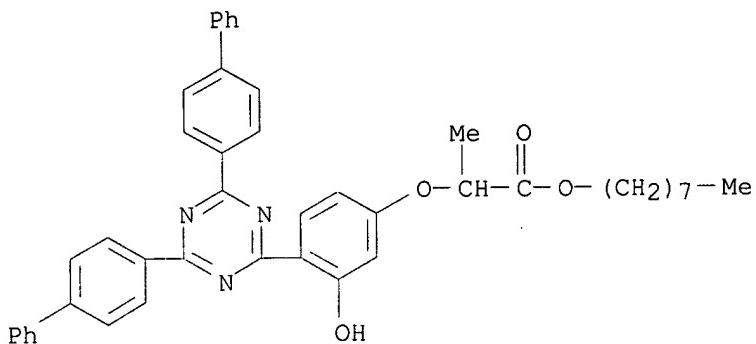


PAGE 1-B

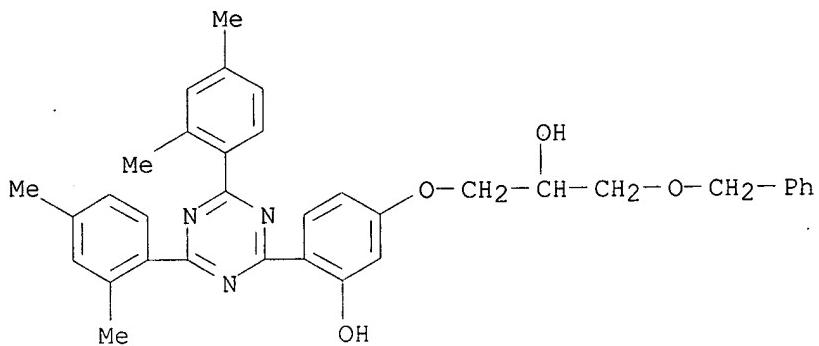
— (C₈H₁₇-iso)

RN 304671-49-6 HCA

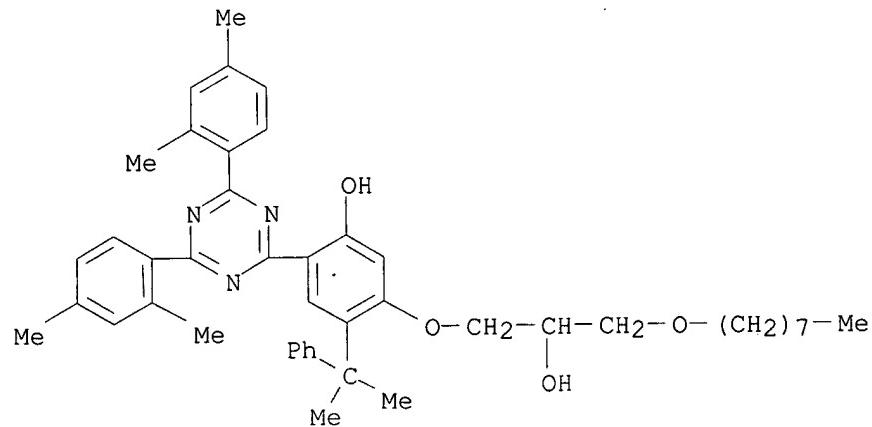
CN Propanoic acid, 2-[4-[4,6-bis([1,1'-biphenyl]-4-yl)-1,3,5-triazin-2-yl]-3-hydroxyphenoxy]—, octyl ester (9CI) (CA INDEX NAME)



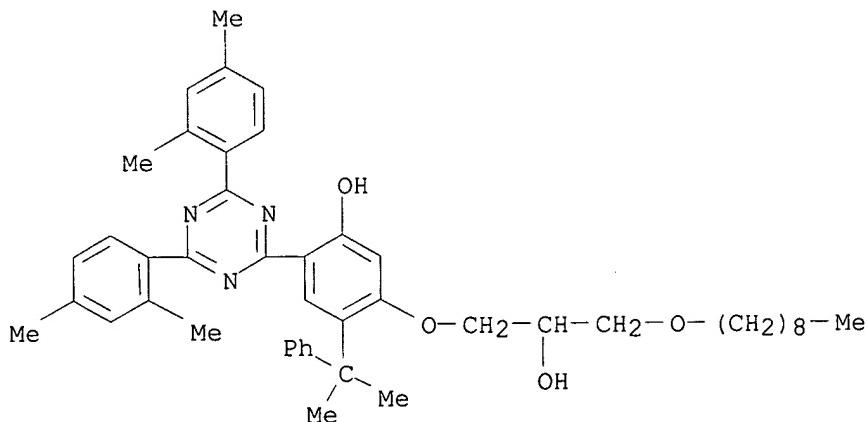
RN 304671-51-0 HCA
 CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-[2-hydroxy-3-(phenylmethoxy)propoxy]- (9CI) (CA INDEX NAME)



RN 336110-75-9 HCA
 CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-[2-hydroxy-3-(octyloxy)propoxy]-4-(1-methyl-1-phenylethyl)- (9CI) (CA INDEX NAME)

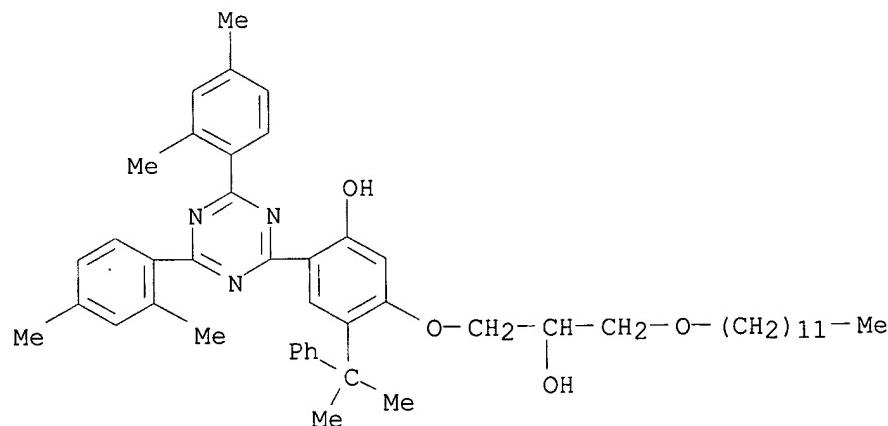


RN 336110-77-1 HCA
 CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-[2-hydroxy-3-(nonyloxy)propoxy]-4-(1-methyl-1-phenylethyl)- (9CI) (CA INDEX NAME)



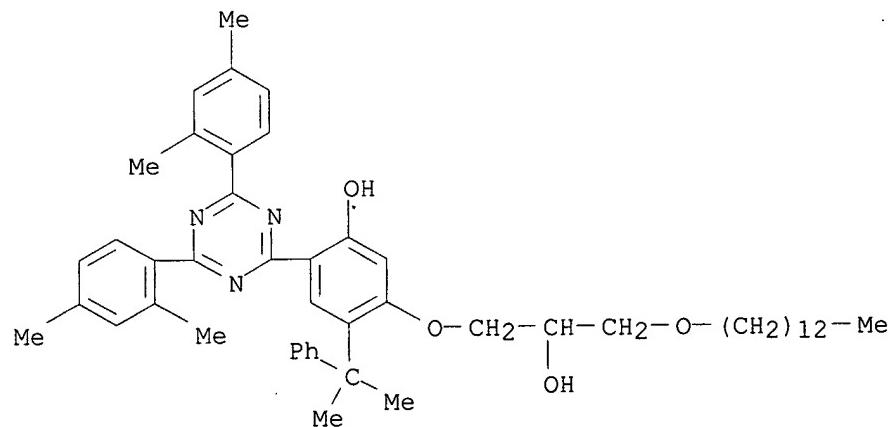
RN 353296-01-2 HCA

CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-[3-(dodecyloxy)-2-hydroxypropoxy]-4-(1-methyl-1-phenylethyl)- (9CI) (CA INDEX NAME)



RN 353296-02-3 HCA

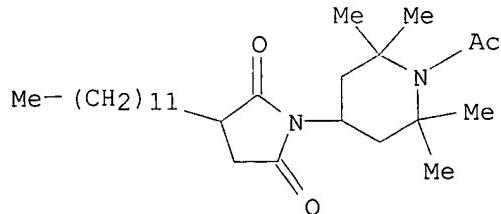
CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-[2-hydroxy-3-(tridecyloxy)propoxy]-4-(1-methyl-1-phenylethyl)- (9CI) (CA INDEX NAME)



IT 106917-31-1, N-1-Acetyl-2,2,6,6-tetramethylpiperidin-4-ylndodecylsuccinimide
 RL: MOA (Modifier or additive use); USES (Uses)
 (hindered amine stabilizer; stabilization of candle wax using s-triazine and piperidine-based hindered amine)

RN 106917-31-1 HCA

CN Piperidine, 1-acetyl-4-(3-dodecyl-2,5-dioxo-1-pyrrolidinyl)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



L54 ANSWER 13 OF 19 HCA COPYRIGHT 2003 ACS

137:233344 Stabiliser systems for polymers in agricultural applications. (Ciba Speciality Chemicals, Basel, Switz.). Research Disclosure, 456(April), P566-P569 (No. 456030) (English) 2002. RD 456030 20020410. CODEN: RSDSBB. ISSN: 0374-4353. PRIORITY: RD 2002-456030 20020410. Publisher: Kenneth Mason Publications Ltd..

AB A stabilizer system esp. designed for polyolefin or olefin copolymer films or tapes used in agricultural applications is described. Typical examples are polyethylene greenhouse films or mulch films. The system consists of a trisaryltriazine class (UVA) UV absorber and a sterically hindered amine (HALS).

CC 37-6 (Plastics Manufacture and Processing)

IT Polyamines

RL: MOA (Modifier or additive use); USES (Uses)
 (triazine group-contg., light stabilizers;
 trisaryltriazine-sterically hindered amine
 stabilizer systems for olefin polymers used in agricultural applications)

IT Agriculture and Agricultural chemistry

(trisaryltriazine-sterically hindered amine
 stabilizer systems for olefin polymers used in agricultural applications)

IT 204583-39-1 357436-15-8D, adducts with

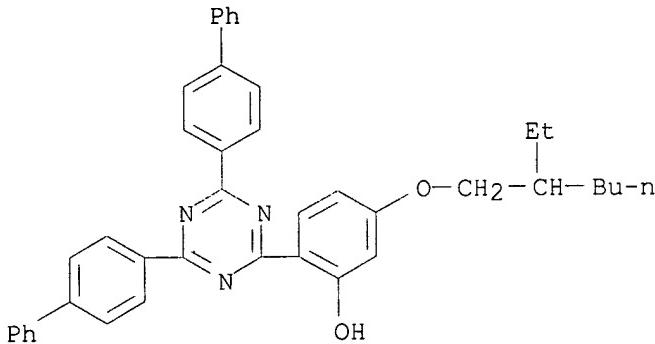
polynorbornene/polycyclopentadiene

RL: MOA (Modifier or additive use); USES (Uses)
 (UV absorber; trisaryltriazine-sterically hindered amine stabilizer systems for olefin polymers used in agricultural applications)

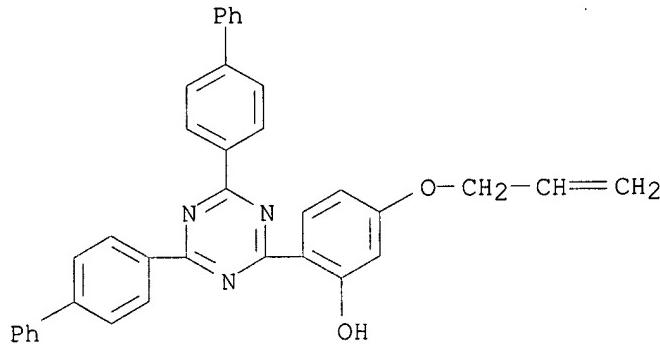
IT 107-45-9D, 2,4,4-Trimethyl-2-pantanamine, reaction products with N,N'-bis(2,2,6,6-tetramethyl-4-piperidinyl)-1,6-hexanediamine-2,4,6-trichloro-1,3,5-triazine copolymer 63812-62-4D, 1,6-Hexanediamine, N,N'-bis(2,2,6,6-tetramethyl-4-piperidinyl)-, polymer with 2,4,6-trichloro-1,3,5-triazine, reaction products with 2,4,4-trimethyl-2-pantanamine 65447-77-0 90751-07-8 106990-43-6 145849-89-4 297748-92-6

RL: MOA (Modifier or additive use); USES (Uses)
 (light stabilizer; trisaryltriazine-sterically hindered amine stabilizer systems for olefin polymers

- used in agricultural applications)
- IT 9002-88-4, Riblene FF 29 9003-07-0, Polypropylene
 RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 (low-d.; trisaryltriazine-sterically **hindered amine**
 stabilizer systems for olefin polymers used in agricultural
 applications)
- IT 204583-39-1 357436-15-8D, adducts with
 polynorbornene/polycyclopentadiene
 RL: MOA (Modifier or additive use); USES (Uses)
 (UV absorber; trisaryltriazine-sterically **hindered**
amine stabilizer systems for olefin polymers used in
 agricultural applications)
- RN 204583-39-1 HCA
- CN Phenol, 2-[4,6-bis([1,1'-biphenyl]-4-yl)-1,3,5-triazin-2-yl]-5-[(2-ethylhexyl)oxy]- (9CI) (CA INDEX NAME)



- RN 357436-15-8 HCA
- CN Phenol, 2-[4,6-bis([1,1'-biphenyl]-4-yl)-1,3,5-triazin-2-yl]-5-(2-propenylloxy)- (9CI) (CA INDEX NAME)

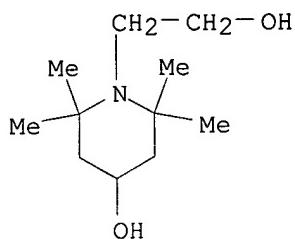


- IT 65447-77-0
 RL: MOA (Modifier or additive use); USES (Uses)
 (light stabilizer; trisaryltriazine-sterically
hindered amine stabilizer systems for olefin polymers
 used in agricultural applications)
- RN 65447-77-0 HCA
- CN Butanedioic acid, dimethyl ester, polymer with 4-hydroxy-2,2,6,6-tetramethyl-1-piperidineethanol (9CI) (CA INDEX NAME)

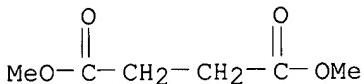
CM 1

CRN 52722-86-8

CMF C11 H23 N O2



CM 2

CRN 106-65-0
CMF C6 H10 O4

L54 ANSWER 4 OF 19 HCA COPYRIGHT 2003 ACS

136:38929 Coating composition for forming mar- and weather-resistant coatings and their outdoor applications. Matsumura, Kazuyuki; Yamaya, Masaaki; Higuchi, Koichi (Shin-Etsu Chemical Co., Ltd., Japan). Eur. Pat. Appl. EP 1162247 A2 20011212, 24 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2001-304996 20010608.

PRIORITY: JP 2000-172511 20000608.

AB A coating compn. comprising (A) 100 parts by wt. of an organosilicon compd. having a hydrolyzable group-bearing silyl group, and (B) 0.1-50 parts by wt. of a hydrolytic condensate of a reaction product and/or a mixt. of a .beta.-diketone with a mixt. (b-1) of a titanium tetraalkoxide and an alkoxide of Zr, Fe, Al, Zn, In, Cu, Si, Sn, W or Mg. The coating compn. is applied to plastic articles, esp. of polycarbonate, to endow them with superior transparency, mar resistance, weather resistance, and chem. resistance. The coated articles find use in outdoor applications as windows and windshields on vehicles and building windows.

IC ICM C09D201-10
ICS C09D157-00

CC 42-10 (Coatings, Inks, and Related Products)
 IT 131-55-5, 2,2',4,4'-Tetrahydroxybenzophenone 131-56-6,
 2,4-Dihydroxybenzophenone 3864-99-1, 2-(3,5-Di-tert-butyl-2-hydroxyphenyl)-5-chlorobenzotriazole **147315-50-2** 153175-43-0,
 2-(2'-Hydroxy-5'-methacryloxyethylphenyl)-2H-benzotriazolemethyl methacrylate copolymer 176163-48-7, 2-(2'-Hydroxy-5'-methacryloxyethylphenyl)-2H-benzotriazole-styrene copolymer
 RL: NUU (Other use, unclassified); USES (Uses)
 (UV absorber; coating compn. for forming mar- and weather-resistant coatings and outdoor applications)

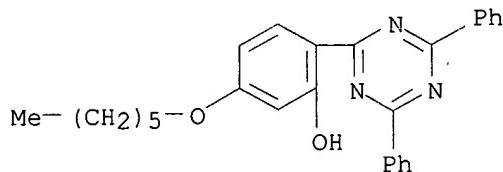
IT 5593-70-4, Tetra-n-butoxytitanium 23779-32-0 100631-43-4
106917-31-1
 RL: NUU (Other use, unclassified); USES (Uses)

(coating compn. for forming mar- and weather-resistant coatings and outdoor applications)

IT **147315-50-2**
 RL: NUU (Other use, unclassified); USES (Uses)

(UV absorber; coating compn. for forming mar- and weather-resistant coatings and outdoor applications)

RN 147315-50-2 HCA
 CN Phenol, 2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-(hexyloxy)- (9CI) (CA INDEX NAME)

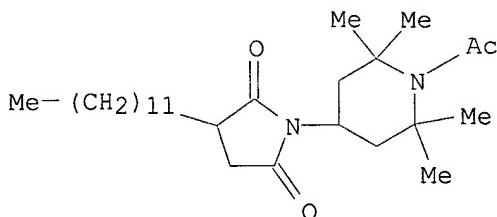


IT 106917-31-1

RL: NUU (Other use, unclassified); USES (Uses)
 (coating compn. for forming mar- and weather-resistant coatings and outdoor applications)

RN 106917-31-1 HCA

CN Piperidine, 1-acetyl-4-(3-dodecyl-2,5-dioxo-1-pyrrolidinyl)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



L54 ANSWER 5 OF 19 HCA COPYRIGHT 2003 ACS

135:167515 Candle wax stabilized with red-shifted benzotriazoles alone or in combination with a **hindered amine** and/or an antioxidant. Trainor, Kevin; Al-Akhdar, Walid; Hyun, James Lee; Ravichandran, Ramanathan; Suhadolnik, Joseph; Smith, Andrea R.; Wood, Mervin Gale (Ciba Specialty Chemicals Holding Inc., Switz.). PCT Int. Appl. WO 2001057125 A1 20010809, 70 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2001-EP680 20010123. PRIORITY: US 2000-495496 20000201.

AB White, dyed, dipped, un-scented and/or scented candle wax is effectively stabilized against discoloration and fading by the incorporation therein of a red-shifted benzotriazole either alone or in combination with a **hindered amine** and/or an antioxidant.

IC ICM C08K005-3475

ICS C08L091-06

CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 45

ST stabilizer candle wax red shifted benzotriazole; benzotriazole **hindered amine** antioxidant candle stabilizer

IT Antioxidants

Candles
Discoloration prevention agents
UV stabilizers
(candle wax stabilized with red-shifted benzotriazoles alone or in combination with a **hindered amine** and/or an antioxidant)

IT Waxes
RL: TEM (Technical or engineered material use); USES (Uses)
(candle wax stabilized with red-shifted benzotriazoles alone or in combination with a **hindered amine** and/or an antioxidant)

IT Amines, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**hindered**; candle wax stabilized with red-shifted benzotriazoles alone or in combination with a **hindered amine** and/or an antioxidant)

IT 2725-22-6, Tinuvin 1545
RL: MOA (Modifier or additive use); USES (Uses)
(Tinuvin 1545; candle wax stabilized with red-shifted benzotriazoles alone or in combination with a **hindered amine** and/or an antioxidant)

IT 128-37-0, 2,6-Di-tert-butyl-p-cresol, uses 1843-05-6, CHIMASSORB 81
6683-19-8, IRGANOX 1010 73936-91-1, TINUVIN 928 83044-89-7, TINUVIN
109 84268-23-5, TINUVIN 384
RL: MOA (Modifier or additive use); USES (Uses)
(antioxidant; candle wax stabilized with red-shifted benzotriazoles alone or in combination with a **hindered amine** and/or an antioxidant)

IT 87-18-3 136-36-7, 3-Hydroxyphenyl benzoate 991-84-4 1709-70-2,
1,3,5-Trimethyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxybenzyl)benzene
1843-03-4, 1,1,3-Tris(2-methyl-4-hydroxy-5-tert-butylphenyl)butane
2082-79-3 2553-08-4 3135-18-0, Dioctadecyl 3,5-di-tert-butyl-4-
hydroxybenzyl phosphonate 3864-99-1, TINUVIN 327 3896-11-5
6601-22-5D, 2,4-Dichloro-6-morpholino-s-triazine, 4,4'-
hexamethylenebis(amino-2,2,6,6-tetramethylpiperidine) 23128-74-7,
N,N'-Hexamethylenebis(3,5-di-tert-butyl-4-hydroxyhydrocinnamamide)
23949-66-8 24886-40-6, Bis(2,2,6,6-tetramethylpiperidin-4-yl) adipate
27676-62-6, 1,3,5-Tris(3,5-di-tert-butyl-4-hydroxybenzyl)isocyanurate
32509-66-3 32687-78-8 34137-09-2, 1,3,5-Tris[2-(3,5-di-tert-butyl-4-
hydroxyhydrocinnamoyloxy)ethyl] isocyanurate 35001-51-5 35074-77-2,
Hexamethylene bis(3,5-di-tert-butyl 4-hydroxyhydrocinnamate) 35958-30-6,
2,2'-Ethylidenebis(4,6-di-tert-butylphenol) 36443-68-2 40075-75-0
40601-76-1, 1,3,5-Tris(2,6-dimethyl-4-tert-butyl-3-hydroxybenzyl)
isocyanurate 41484-35-9, Thiodiethylene bis(3,5-di-tert-butyl
4-hydroxyhydrocinnamate) 47662-15-7 49567-92-2 61269-61-2
62782-03-0, Bis(2,2,6,6-tetramethylpiperidin-4-yl) succinate 63843-89-0
64022-57-7, Tris(2,2,6,6-tetramethylpiperidin-4-yl) nitrilotriacetate
64022-61-3, Tetrakis(2,2,6,6-tetramethylpiperidin-4-yl)
1,2,3,4-butanetetracarboxylate 64338-16-5 65140-91-2, Calcium
bis(ethyl 3,5-di-tert-butyl-4-hydroxybenzylphosphonate) 67845-92-5
67990-74-3 70198-29-7 71029-16-8, GOODRITE 3034 72058-41-4D,
reaction product with CHIMASSORB 944 72058-42-5 77876-06-3, Octyl
3,5-di-tert-butyl-4-hydroxybenzylmercaptoacetate 79720-19-7 82678-02-2
87113-78-8 88053-66-1 91788-83-9 96204-36-3 104564-32-1,
4-Stearyloxy-2,2,6,6-tetramethylpiperidine 104810-48-2, TINUVIN 1130
106917-30-0 106917-31-1 106990-43-6 109834-84-6
110880-18-7, N,N'-Bis[2-(3,5-di-tert-butyl-4-hydroxyhydrocinnamoyloxy)ethy
l]oxamide 122586-62-3 122586-72-5 122586-76-9 122586-79-2
122586-85-0 122586-98-5 122587-15-9 122616-76-6,
Bis(1-cyclohexyloxy-2,2,6,6-tetramethylpiperidin-4-yl) sebacate

128932-67-2 130277-45-1, GOODRITE 3159 131807-04-0,
 1-Octyloxy-4-hydroxy-2,2,6,6-tetramethylpiperidine 178671-58-4
 183729-76-2, Bis(1-cyclohexyloxy-2,2,6,6-tetramethylpiperidin-4-yl)
 adipate 200126-10-9 207738-63-4 207738-93-0 219539-24-9
 219991-91-0 286471-11-2 286471-12-3 286471-14-5 286471-17-8
 286471-18-9 286471-19-0 286471-20-3 286471-21-4 286471-25-8
 286471-26-9 286471-27-0 286471-28-1 286471-29-2 286471-30-5
 286471-31-6 286471-32-7 286471-33-8 286471-34-9 286471-36-1
 286471-37-2 286476-92-4 290821-85-1 290821-88-4 290822-12-7
 290822-14-9 305322-07-0 305322-08-1 305322-09-2 305322-10-5
 305322-11-6 353296-01-2 353296-02-3 353296-04-5
 353296-10-3 353498-13-2 353498-17-6

RL: MOA (Modifier or additive use); USES (Uses)
 (candle wax stabilized with red-shifted benzotriazoles alone or in
 combination with a **hindered amine** and/or an
 antioxidant)

IT 41556-26-7, TINUVIN 292 52829-07-9, TINUVIN 770 71878-19-8D,
 CHIMASSORB 944, reaction product with 2,4-Dichloro-6-*tert*-octylamino-s-
 triazine 87018-00-6 122586-52-1, TINUVIN 123 150686-79-6
 290821-83-9 290822-07-0 290822-13-8

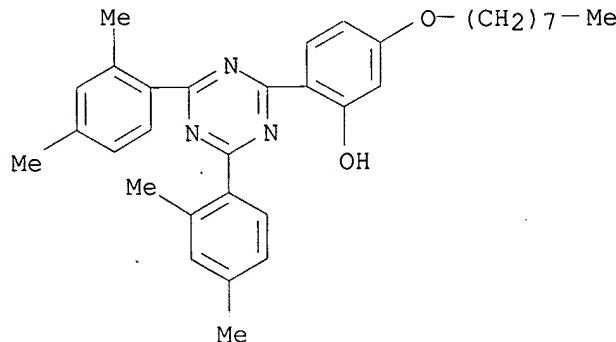
RL: MOA (Modifier or additive use); USES (Uses)
 (**hindered amine**; candle wax stabilized with
 red-shifted benzotriazoles alone or in combination with a
hindered amine and/or an antioxidant)

IT 2725-22-6, Tinuvin 1545

RL: MOA (Modifier or additive use); USES (Uses)
 (Tinuvin 1545; candle wax stabilized with red-shifted benzotriazoles
 alone or in combination with a **hindered amine**
 and/or an antioxidant)

RN 2725-22-6 HCA

CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)-
 (9CI) (CA INDEX NAME)

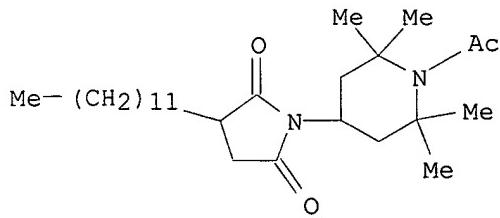


IT 106917-31-1 353296-01-2 353296-02-3

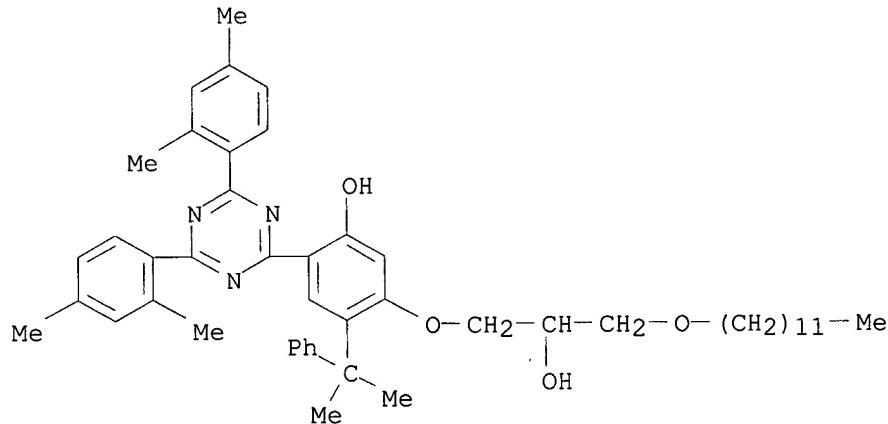
RL: MOA (Modifier or additive use); USES (Uses)
 (candle wax stabilized with red-shifted benzotriazoles alone or in
 combination with a **hindered amine** and/or an
 antioxidant)

RN 106917-31-1 HCA

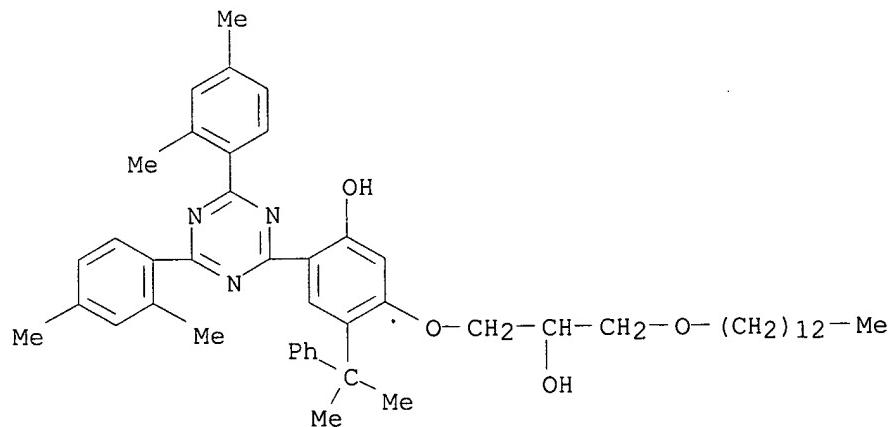
CN Piperidine, 1-acetyl-4-(3-dodecyl-2,5-dioxo-1-pyrrolidinyl)-2,2,6,6-
 tetramethyl- (9CI) (CA INDEX NAME)



RN 353296-01-2 HCA
 CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-[3-(dodecyloxy)-2-hydroxypropoxy]-4-(1-methyl-1-phenylethyl)- (9CI) (CA INDEX NAME)



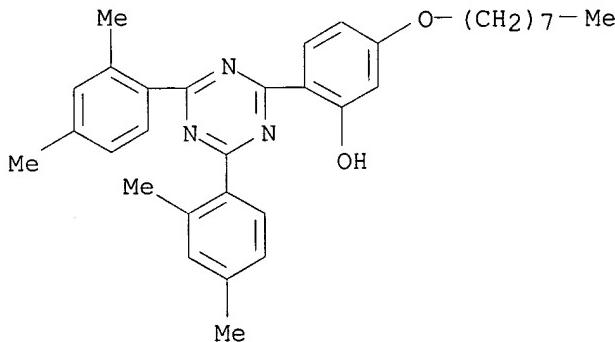
RN 353296-02-3 HCA
 CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-[2-hydroxy-3-(tridecyloxy)propoxy]-4-(1-methyl-1-phenylethyl)- (9CI) (CA INDEX NAME)



L54 ANSWER (6) OF 19 HCA COPYRIGHT 2003 ACS
 134:18344 Weather-resistant base films for decorative sheets. Noguchi,
 Katsuhiro; Amano, Eiichi; Urushibara, Tatsuya; Shimizu, Toshiaki (Ohkura
 Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000336178 A2
 20001205, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-150365

19990528.

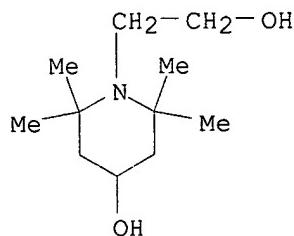
- AB The title films comprise .gtoreq.1 thermoplastic layer (e.g., of ethylene-propylene copolymer) contg. 2-[2-hydroxy-3-(3,4,5,6-tetrahydrophthalimidomethyl)-5-octylphenyl]benzotriazole and/or 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)phenol as UV absorbent, and optionally **hindered amine light stabilizers** [e.g., di-Me succinate-1-(2-hydroxyethyl)-4-hydroxy-2,2,6,6-tetramethylpiperidine copolymer, poly[[6-(1,1,3,3-tetramethylbutyl)amino-1,3,5-triazine-2,4-diyl][(2,2,6,6-tetramethyl-4-piperidyl)imino]hexamethylene[(2,2,6,6-tetramethyl-4-piperidyl)imino]]].
- IC ICM C08J005-18
ICS C08K005-3432; C08K005-3475; C08K005-3477; C08L101-00
- CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 27, 28
- IT 2725-22-6, 2-[4,6-Bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)phenol 59129-04-3
RL: MOA (Modifier or additive use); USES (Uses)
(UV absorbents; weather-resistant base films for decorative sheets)
- IT 65447-77-0, Dimethyl succinate-1-(2-hydroxyethyl)-4-hydroxy-2,2,6,6-tetramethylpiperidine copolymer 71878-19-8, Poly[[6-(1,1,3,3-tetramethylbutyl)amino-1,3,5-triazine-2,4-diyl][(2,2,6,6-tetramethyl-4-piperidyl)imino]hexamethylene[(2,2,6,6-tetramethyl-4-piperidyl)imino]]
RL: MOA (Modifier or additive use); USES (Uses)
(light stabilizers; weather-resistant base films for decorative sheets)
- IT 2725-22-6, 2-[4,6-Bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)phenol
RL: MOA (Modifier or additive use); USES (Uses)
(UV absorbents; weather-resistant base films for decorative sheets)
- RN 2725-22-6 HCA
CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)-(9CI) (CA INDEX NAME)



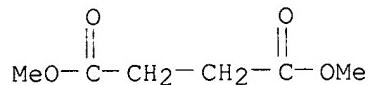
- IT 65447-77-0, Dimethyl succinate-1-(2-hydroxyethyl)-4-hydroxy-2,2,6,6-tetramethylpiperidine copolymer
RL: MOA (Modifier or additive use); USES (Uses)
(light stabilizers; weather-resistant base films for decorative sheets)
- RN 65447-77-0 HCA
CN Butanedioic acid, dimethyl ester, polymer with 4-hydroxy-2,2,6,6-tetramethyl-1-piperidineethanol (9CI) (CA INDEX NAME)

CM 1

CRN 52722-86-8
CMF C11 H23 N O2



CM 2

CRN 106-65-0
CMF C6 H10 O4

L54 ANSWER 7 OF 19 HCA COPYRIGHT 2003 ACS

133:336063 Thermoplastic resin compositions resistant to weather and radiation-induced discoloration. Noguchi, Katsuhiro; Amano, Eiichi; Urushihara, Tatsuya; Shimizu, Toshiaki (Ohkura Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000313813 A2 20001114, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-122411 19990428.

AB The compns. contain UV absorbers 2-[2-hydroxy-3-(3,4,5,6-tetrahydronaphthalimidomethyl)-5-octylphenyl]benzotriazole (I) and/or 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)phenol. Thus, propylene homopolymer was kneaded with I 5000, a phenolic antioxidant 500, and a phosphite antioxidant 1000 ppm and pressed into a sheet showing color difference (.DELTA.E*ab) 1.1 before and after irradn. with electron beams.

IC ICM C08L101-00

ICS C08K005-3432; C08K005-3475; C08K005-3492; C08L023-00

CC 37-6 (Plastics Manufacture and Processing)

IT Polyamines

Polyesters, uses

RL: MOA (Modifier or additive use); USES (Uses)

(hindered amine light stabilizers;
weather- and discoloration-resistant thermoplastic resin compns.
. contg. UV absorbers)

IT Light stabilizers

(hindered amines; weather- and discoloration-
resistant thermoplastic resin compns. contg. UV absorbers)

IT Amines, uses

RL: MOA (Modifier or additive use); USES (Uses)

(hindered, light stabilizers; weather- and
discoloration-resistant thermoplastic resin compns. contg. UV
absorbers)

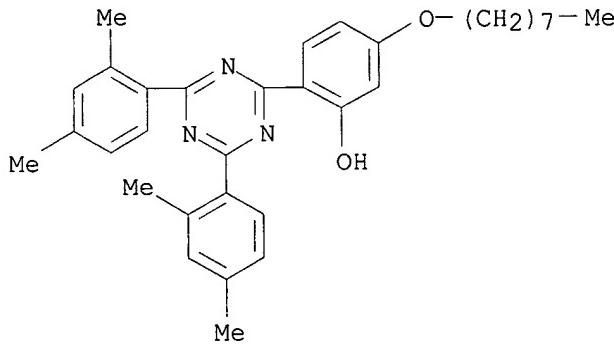
IT Plastics, properties

RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)
(thermoplastics; weather- and discoloration-resistant thermoplastic
resin compns. contg. UV absorbers)

IT Antioxidants

Light-resistant materials

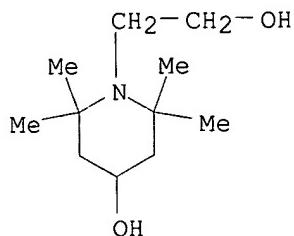
- UV stabilizers
 (weather- and discoloration-resistant thermoplastic resin
 compns. contg. UV absorbers)
- IT Polyolefins
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
 engineered material use); USES (Uses)
 (weather- and discoloration-resistant thermoplastic resin
 compns. contg. UV absorbers)
- IT 2725-22-6, 2-[4,6-Bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)phenol 59129-04-3
 RL: MOA (Modifier or additive use); USES (Uses)
 (UV absorber; weather- and discoloration-resistant thermoplastic resin
 compns. contg. UV absorbers)
- IT 65447-77-0, Dimethyl succinate-1-(2-hydroxyethyl)-4-hydroxy-
 2,2,6,6-tetramethylpiperidine copolymer 71878-19-8, Poly
 [(6-(1,1,3,3-tetramethyl butyl) amino-1,3,5-triazine-2,4-diyl][(2,2,6,6-
 tetramethyl-4-piperidyl) imino] hexamethylene [(2,2,6,6-tetramethyl-4-
 piperidyl) imino]]
 RL: MOA (Modifier or additive use); USES (Uses)
 (light stabilizer; weather- and discoloration-resistant thermoplastic
 resin compns. contg. UV absorbers)
- IT 9003-07-0, Polypropylene
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
 engineered material use); USES (Uses)
 (weather- and discoloration-resistant thermoplastic resin
 compns. contg. UV absorbers)
- IT 2725-22-6, 2-[4,6-Bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)phenol
 RL: MOA (Modifier or additive use); USES (Uses)
 (UV absorber; weather- and discoloration-resistant thermoplastic resin
 compns. contg. UV absorbers)
- RN 2725-22-6 HCA
- CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)-(9CI) (CA INDEX NAME)



- IT 65447-77-0, Dimethyl succinate-1-(2-hydroxyethyl)-4-hydroxy-
 2,2,6,6-tetramethylpiperidine copolymer
 RL: MOA (Modifier or additive use); USES (Uses)
 (light stabilizer; weather- and discoloration-resistant thermoplastic
 resin compns. contg. UV absorbers)
- RN 65447-77-0 HCA
- CN Butanedioic acid, dimethyl ester, polymer with 4-hydroxy-2,2,6,6-
 tetramethyl-1-piperidineethanol (9CI) (CA INDEX NAME)

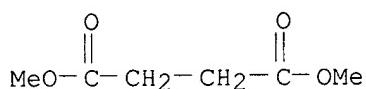
CM 1

CRN 52722-86-8
CMF C11 H23 N O2



CM 2

CRN 106-65-0
CMF C6 H10 O4



L54 ANSWER 8 OF 19 HCA COPYRIGHT 2003 ACS

133:105748 Weather-resistant thermoplastic resin compositions and their molded products. Ishizuka, Yutaka; Takesawa, Yutaka (Dainippon Ink and Chemicals, Inc., Japan). Jpn. Kokai Tokkyo Koho JP 2000191918 A2 20000711, 15 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-369738 19981225.

AB The compns. contain (A) thermoplastic resin 99.94-98.10, (B) 2,5-bis(5-tert-butyl-2-benzoxazolyl)thiophene (I) 0.02-0.70, (C) triazines 0.02-0.50, (D) benzotriazol UV absorbers 0.02-0.70%, and (E) optionally benzoate UV absorbers, hindered amine light stabilizers, and phosphite antioxidants in specified ratio. Thus, 99.94% polypropylene was kneaded with I 0.02, 2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-hexyloxyphenol 0.02, and 2,2'-methylenebis[4-(1,1,3,3-tetramethylbutyl)-6-(2H-benzotriazol-2-yl)phenol] 0.02% and extruded to give a sheet, showing good moldability, no bleeding, and good UV absorption.

IC ICM C08L101-00
ICS C08K005-3472; C08K005-3492; C08K005-45; C08L023-00; C08L023-10

CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 38

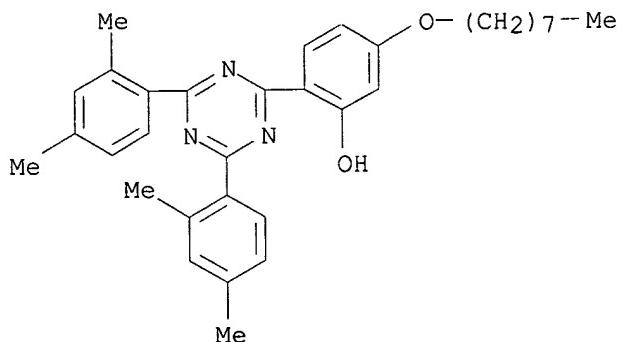
ST thermoplastic resin benzoxazolylthiophene triazine weather resistance; polypropylene benzotriazole benzoate UV absorber; hindered amine phosphite polypropylene bleeding prevention

IT Plastics, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(thermoplastics; weather-resistant thermoplastic resin compns
. with good bleeding prevention)

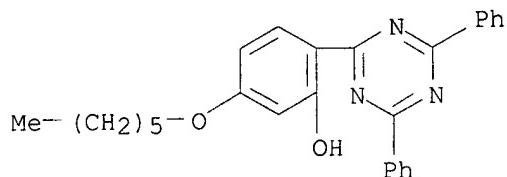
IT Antioxidants
Light stabilizers
UV stabilizers
(weather-resistant thermoplastic resin compns. with good
bleeding prevention)

IT Polycarbonates, properties
Polymers, properties
Polyolefins

- RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (weather-resistant thermoplastic resin compns. with good bleeding prevention)
- IT Molded plastics, properties
 RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (weather-resistant thermoplastic resin compns. with good bleeding prevention)
- IT 2725-22-6, 2-[4,6-Bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)phenol 4221-80-1 7128-64-5, 2,5-Bis(5-tert-butyl-2-benzoxazolyl)thiophene 70321-86-7, 2-[2-Hydroxy-3,5-bis(.alpha.,.alpha.-dimethylbenzyl)phenyl]-2H-benzotriazole 103597-45-1, 2,2'-Methylenebis[4-(1,1,3,3-tetramethylbutyl)-6-(2H-benzotriazol-2-yl)phenol] 147315-50-2, 2-(4,6-Diphenyl-1,3,5-triazin-2-yl)-5-hexyloxyphenol
 RL: MOA (Modifier or additive use); USES (Uses)
 (UV absorber; weather-resistant thermoplastic resin compns. with good bleeding prevention)
- IT 31570-04-4, Tris(2,4-di-tert-butylphenyl) phosphite 38613-77-3, Tetrakis(2,4-di-tert-butylphenyl)-4,4'-biphenylenediphosphonite 80410-33-9, 2-[[2,4,8,10-Tetrakis(1,1-dimethylethyl)dibenzo[d,f][1,3,2]dioxaphosphhepin-6-yl]oxy]-N,N-bis[2-[[2,4,8,10-tetrakis(1,1-dimethylethyl)dibenzo[d,f][1,3,2]dioxaphosphhepin-6-yl]oxy]ethyl]ethanamine
 RL: MOA (Modifier or additive use); USES (Uses)
 (antioxidant; weather-resistant thermoplastic resin compns. with good bleeding prevention)
- IT 65447-77-0, Dimethylsuccinate-1-(2-hydroxyethyl)-4-hydroxy-2,2,6,6-tetramethylpiperidine copolymer 71878-19-8, Poly[[6-(1,1,3,3-tetramethylbutyl)amino-1,3,5-triazine-2,4-diyl][(2,2,6,6-tetramethyl-4-piperidyl)imino]hexamethylene[(2,2,6,6-tetramethyl-4-piperidyl)imino]]
 RL: MOA (Modifier or additive use); USES (Uses)
 (light stabilizer; weather-resistant thermoplastic resin compns. with good bleeding prevention)
- IT 9002-88-4, LDPE 9003-07-0, Polypropylene 24936-68-3, Panlite L-1250, properties 25037-45-0 25038-59-9, NEH 2031, properties
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (weather-resistant thermoplastic resin compns. with good bleeding prevention)
- IT 2725-22-6, 2-[4,6-Bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)phenol 147315-50-2, 2-(4,6-Diphenyl-1,3,5-triazin-2-yl)-5-hexyloxyphenol
 RL: MOA (Modifier or additive use); USES (Uses)
 (UV absorber; weather-resistant thermoplastic resin compns. with good bleeding prevention)
- RN 2725-22-6 HCA
 CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)-(9CI) (CA INDEX NAME)



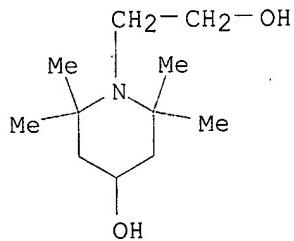
RN 147315-50-2 HCA
 CN Phenol, 2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-(hexyloxy)- (9CI) (CA INDEX NAME)



IT 65447-77-0, Dimethylsuccinate-1-(2-hydroxyethyl)-4-hydroxy-2,2,6,6-tetramethylpiperidine copolymer
 RL: MOA (Modifier or additive use); USES (Uses)
 (light stabilizer; weather-resistant thermoplastic resin compns
 . with good bleeding prevention)
 RN 65447-77-0 HCA
 CN Butanedioic acid, dimethyl ester, polymer with 4-hydroxy-2,2,6,6-tetramethyl-1-piperidinethanol (9CI) (CA INDEX NAME)

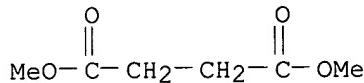
CM 1

CRN 52722-86-8
 CMF C11 H23 N O2



CM 2

CRN 106-65-0
 CMF C6 H10 O4



L54 ANSWER 9 OF 19 HCA COPYRIGHT 2003 ACS

132:322832 Polyolefin **compositions** and moldings therefrom with excellent UV absorption and bleed out resistance. Ishizuka, Yutaka; Takesawa, Yutaka (Dainippon Ink and Chemicals, Inc., Japan). Jpn. Kokai Tokkyo Koho JP 2000136270 A2 20000516, 10 pp. (Japanese). CODEN: JKXXAF.

APPLICATION: JP 1998-310074 T 19981030.

AB The **compns.** contain polyolefins 99.96-98.80, triazine-contg. compds. 0.02-0.50, and benzotriazole-type UV absorbers 0.02-0.7%. Thus, a 0.3-mm film comprising polypropylene 99.70, 2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-hexyloxyphenol 0.02, and 2,2'-methylenebis[4-(1,1,3,3-tetramethylbutyl)-6-(2H-benzotriazol-2-yl)phenol] 0.02 parts showed no bleed out after 7 days at 40.degree. and good UV absorption.

IC ICM C08L023-00

ICS C08J005-00; C08K005-3475; C08K005-3477; C08K005-524

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 37

IT **Amines**, uses

RL: MOA (Modifier or additive use); USES (Uses)

(hindered, light stabilizer; polyolefin **compns.** contg. triazine compds. and UV absorbers with good bleed out resistance)

IT Antioxidants

Light stabilizers

UV stabilizers

(polyolefin **compns.** contg. triazine compds. and UV absorbers with good bleed out resistance)

IT Polyolefins

RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)

(polyolefin **compns.** contg. triazine compds. and UV absorbers with good bleed out resistance)

IT Molded plastics, properties

RL: PRP (Properties)

(polyolefin **compns.** contg. triazine compds. and UV absorbers with good bleed out resistance)

IT 70321-86-7, 2-[2-Hydroxy-3,5-bis(.alpha.,.alpha.-dimethylbenzyl)phenyl]-2H-benzotriazole 103597-45-1

RL: MOA (Modifier or additive use); USES (Uses)

(UV absorber; polyolefin **compns.** contg. triazine compds. and UV absorbers with good bleed out resistance)

IT 31570-04-4, Tris(2,4-di-tert-butylphenyl)phosphite 80410-33-9

RL: MOA (Modifier or additive use); USES (Uses)

(antioxidant; polyolefin **compns.** contg. triazine compds. and UV absorbers with good bleed out resistance)

IT 65447-77-0, Dimethyl succinate-1-(2-hydroxyethyl)-4-hydroxy-2,2,6,6-tetramethylpiperidine copolymer 71878-19-8 111144-78-6

RL: MOA (Modifier or additive use); USES (Uses)

(light stabilizer; polyolefin **compns.** contg. triazine compds. and UV absorbers with good bleed out resistance)

IT 2725-22-6, 2-[4,6-Bis(2,4-dimethylphenyl-1,3,5-triazin-2-yl)-5-octyloxyphenol 38613-77-3, Tetrakis(2,4-di-tert-butylphenyl)-4,4'-biphenylenediphosphonite) 147315-50-2, 2-(4,6-Diphenyl-1,3,5-triazin-2-yl)-5-hexyloxyphenol

RL: MOA (Modifier or additive use); USES (Uses)

(polyolefin compns. contg. triazine compds. and UV absorbers with good bleed out resistance)

IT 9003-07-0, Polypropylene
 RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 (polyolefin compns. contg. triazine compds. and UV absorbers with good bleed out resistance)

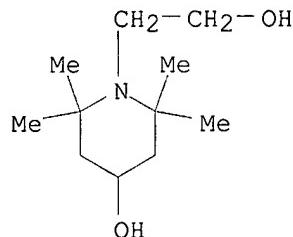
IT 65447-77-0, Dimethyl succinate-1-(2-hydroxyethyl)-4-hydroxy-2,2,6,6-tetramethylpiperidine copolymer
 RL: MOA (Modifier or additive use); USES (Uses)
 (light stabilizer; polyolefin compns. contg. triazine compds. and UV absorbers with good bleed out resistance)

RN 65447-77-0 HCA

CN Butanedioic acid, dimethyl ester, polymer with 4-hydroxy-2,2,6,6-tetramethyl-1-piperideneethanol (9CI) (CA INDEX NAME)

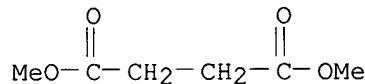
CM 1

CRN 52722-86-8
 CMF C11 H23 N O2



CM 2

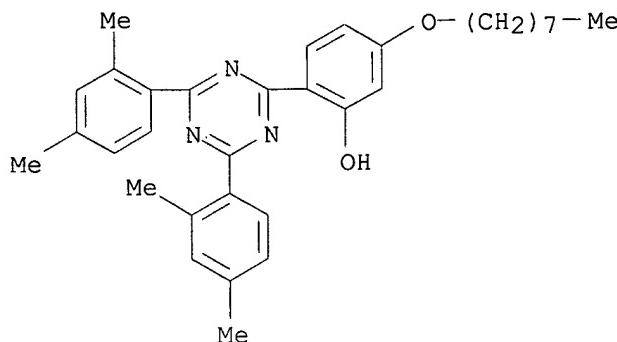
CRN 106-65-0
 CMF C6 H10 O4



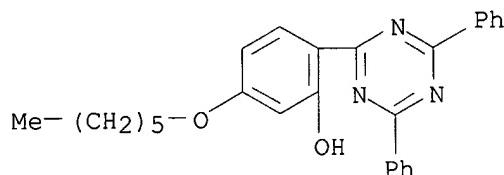
IT 2725-22-6, 2-[4,6-Bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-octyloxyphenol 147315-50-2, 2-(4,6-Diphenyl-1,3,5-triazin-2-yl)-5-hexyloxyphenol
 RL: MOA (Modifier or additive use); USES (Uses)
 (polyolefin compns. contg. triazine compds. and UV absorbers with good bleed out resistance)

RN 2725-22-6 HCA

CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)-(9CI) (CA INDEX NAME)



RN 147315-50-2 HCA
 CN Phenol, 2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-(hexyloxy)- (9CI) (CA INDEX NAME)



L54 ANSWER 10 OF 19 HCA COPYRIGHT 2003 ACS

131:338053 Polymer **compositions** containing synergistic stabilizers and their moldings with good UV stability. Samuels, Sari-Beth (Cytec Technology Corp., USA). PCT Int. Appl. WO 9957189 A1 19991111, 29 pp. DESIGNATED STATES: W: AL, AM, AU, AZ, BA, BB, BG, BR, BY, CA, CN, CU, CZ, EE, GE, GH, GM, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, RO, RU, SD, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1999-US6862 19990330. PRIORITY: US 1998-70627 19980430.

AB The moldings, such as extruded or moldings or biaxially oriented film, comprises a polymer, 50-5000 ppm .gtoreq.1 ortho-hydroxy trisaryl triazine light absorber and 500 ppm-1.25% .gtoreq.1 oligomeric, polymeric, or high mol. wt. **hindered amine light** stabilizer (**HALS**) having mol. wt. .gtoreq.500, wherein the wt. ratio of **HALS** to triazine light absorber is 3:1-20:1. Thus, LLDPE was mixed with 0.3% Chimssorb 944, 0.5 g Irganox 1010, 1.0 g Irgafos 168, and 0.25 g zinc stearate, and injection-molded to give a test piece showing elongation at break 514% initially, and 486% after exposing in UV-light with water spray for 6000 h.

IC ICM C08K005-00

ICS C08K005-00; C08K005-3492; C08K005-3435

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 37

ST ortho hydroxy trisaryl triazine synergistic stabilizer molding;
hindered amine synergistic stabilizer polymer molding

IT **Polyesters**, uses

Polyesters, uses

RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(acrylic-aminoplast-; polymer **compns.** contg. synergistic stabilizers contg. ortho hydroxy trisaryl-triazines and **hindered amines** for moldings and films)

IT Aminoplasts
Aminoplasts
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(acrylic-**polyester**-; polymer **compns.** contg. synergistic stabilizers contg. ortho hydroxy trisaryl-triazines and **hindered amines** for moldings and films)

IT Aminoplasts
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(acrylic; polymer **compns.** contg. synergistic stabilizers contg. ortho hydroxy trisaryl-triazines and **hindered amines** for moldings and films)

IT Acrylic polymers, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(aminoplast-; polymer **compns.** contg. synergistic stabilizers contg. ortho hydroxy trisaryl-triazines and **hindered amines** for moldings and films)

IT Acrylic polymers, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(aminoplast-**polyester**-; polymer **compns.** contg. synergistic stabilizers contg. ortho hydroxy trisaryl-triazines and **hindered amines** for moldings and films)

IT Epoxy resins, uses
Epoxy resins, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(aminoplast; polymer **compns.** contg. synergistic stabilizers contg. ortho hydroxy trisaryl-triazines and **hindered amines** for moldings and films)

IT Aminoplasts
Aminoplasts
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(epoxy; polymer **compns.** contg. synergistic stabilizers contg. ortho hydroxy trisaryl-triazines and **hindered amines** for moldings and films)

IT Light stabilizers
(**hindered amine**; polymer **compns.** contg. synergistic stabilizers contg. ortho hydroxy trisaryl-triazines and **hindered amines** for moldings and films)

IT Amines, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**hindered, light stabilizers**; polymer **compns.** contg. synergistic stabilizers contg. ortho hydroxy trisaryl-triazines and **hindered amines** for moldings and films)

IT Polyimides, uses
Polyimides, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyamide-; polymer **compns.** contg. synergistic stabilizers contg. ortho hydroxy trisaryl-triazines and **hindered amines** for moldings and films)

IT Polyurethanes, uses

RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**polyester-**, acrylic; polymer **compns.** contg.
synergistic stabilizers contg. ortho hydroxy trisaryl-triazines and
hindered amines for moldings and films)

IT Polyimides, uses
Polyimides, uses
Polysulfones, uses
Polysulfones, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyether-; polymer **compns.** contg. synergistic stabilizers
contg. ortho hydroxy trisaryl-triazines and **hindered
amines** for moldings and films)

IT Polyamides, uses
Polyamides, uses
Polyethers, uses
Polyethers, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polyimide-; polymer **compns.** contg. synergistic stabilizers
contg. ortho hydroxy trisaryl-triazines and **hindered
amines** for moldings and films)

IT Plastic films
UV stabilizers
(polymer **compns.** contg. synergistic stabilizers contg. ortho
hydroxy trisaryl-triazines and **hindered amines** for
moldings and films)

IT Alkyd resins
Aminoplasts
Epoxy resins, uses
Linear low density polyethylenes
Phenolic resins, uses
Polyamides, uses
Polycarbonates, uses
Polyesters, uses
Polyethers, uses
Polyimides, uses
Polyisocyanurates
Polyketones
Polyolefins
Polyoxymethylene, uses
Polyoxyphenylenes
Polysiloxanes, uses
Polysulfones, uses
Polythiophenylenes
Polyurethanes, uses
Rubber, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polymer **compns.** contg. synergistic stabilizers contg. ortho
hydroxy trisaryl-triazines and **hindered amines** for
moldings and films)

IT Molded plastics, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer **compns.** contg. synergistic stabilizers contg. ortho
hydroxy trisaryl-triazines and **hindered amines** for
moldings and films)

IT Polyethers, uses
Polyethers, uses

RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (polysulfone-; polymer **compns.** contg. synergistic stabilizers
 contg. ortho hydroxy trisaryl-triazines and **hindered
 amines** for moldings and films)

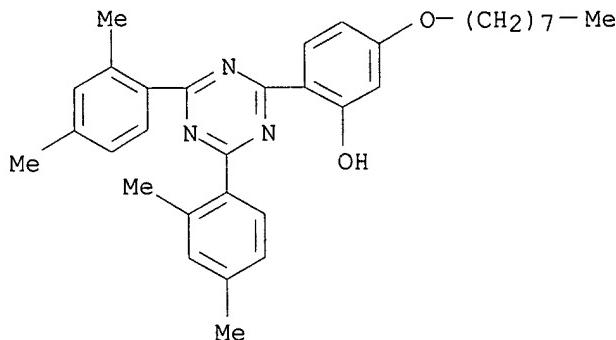
IT 74-85-1D, Ethylene, polymers with .alpha.-olefins
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (LLDPE; polymer **compns.** contg. synergistic stabilizers contg.
 ortho hydroxy trisaryl-triazines and **hindered amines**
 for moldings and films)

IT 2725-22-6, Cyasorb UV 1164 36177-92-1D, N-Butyl-2,2,6,6-tetramethyl-4-piperidinamine, reaction products with N,N'-1,2-Ethanediylbis[1,3-propanediamine]-2,4,6-trichloro-1,3,5-triazine copolymer 41556-26-7, Tinuvin 765 65447-77-0, Dimethyl succinate-4-hydroxy-2,2,6,6-tetramethyl-1-piperidineethanol copolymer 70198-29-7, Tinuvin 622 70321-86-7, Tinuvin 900 71878-19-8, Chimassorb 944 85099-51-0, Sanduvor 3050 90751-07-8, Cyasorb UV 3346 106990-43-6 117846-26-1 122586-52-1, Bis(1-octyloxy-2,2,6,6-tetramethyl-4-piperidinyl) sebacate 147315-50-2 164578-15-8 164648-93-5 174587-71-4D, 1,3-Propanediamine, N,N'-1,2-ethanediylbis-, polymer with 2,4,6-trichloro-1,3,5-triazine, reaction products with N-butyl-2,2,6,6-tetramethyl-4-piperidinamine 174629-65-3 178905-31-2 178905-32-3 180385-57-3 247095-05-2 250221-69-3
 RL: MOA (Modifier or additive use); USES (Uses)
 (light stabilizer; polymer **compns.** contg. synergistic stabilizers contg. ortho hydroxy trisaryl-triazines and **hindered amines** for moldings and films)

IT 79-10-7D, Acrylic acid, esters, polymers 79-41-4D, Methacrylic acid, esters, polymers 9002-86-2, Poly(vinyl chloride) 9003-07-0, Polypropylene 9003-08-1 9003-17-2, Polybutadiene 9003-35-4 9003-53-6 9003-54-7, Acrylonitrile-styrene copolymer 9003-56-9, ABS 9004-34-6, Cellulose, uses 9004-36-8 9011-05-6 25014-41-9, Polyacrylonitrile 64440-88-6, Polycarbamate
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (polymer **compns.** contg. synergistic stabilizers contg. ortho hydroxy trisaryl-triazines and **hindered amines** for moldings and films)

IT 2725-22-6, Cyasorb UV 1164 65447-77-0, Dimethyl succinate-4-hydroxy-2,2,6,6-tetramethyl-1-piperidineethanol copolymer 147315-50-2 174629-65-3 178905-31-2 178905-32-3
 RL: MOA (Modifier or additive use); USES (Uses)
 (light stabilizer; polymer **compns.** contg. synergistic stabilizers contg. ortho hydroxy trisaryl-triazines and **hindered amines** for moldings and films)

RN 2725-22-6 HCA
 CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)-(9CI) (CA INDEX NAME)



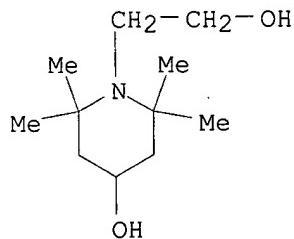
RN 65447-77-0 HCA

CN Butanedioic acid, dimethyl ester, polymer with 4-hydroxy-2,2,6,6-tetramethyl-1-piperidinethanol (9CI) (CA INDEX NAME)

CM 1

CRN 52722-86-8

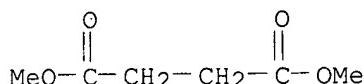
CMF C11 H23 N O2



CM 2

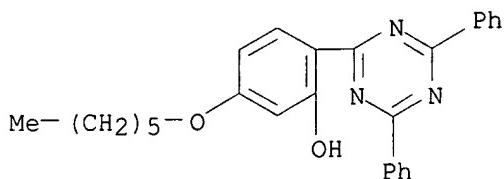
CRN 106-65-0

CMF C6 H10 O4



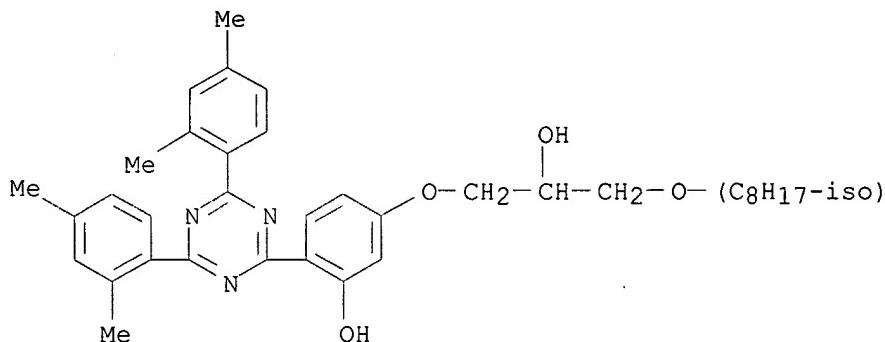
RN 147315-50-2 HCA

CN Phenol, 2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-(hexyloxy)-(9CI) (CA INDEX NAME)

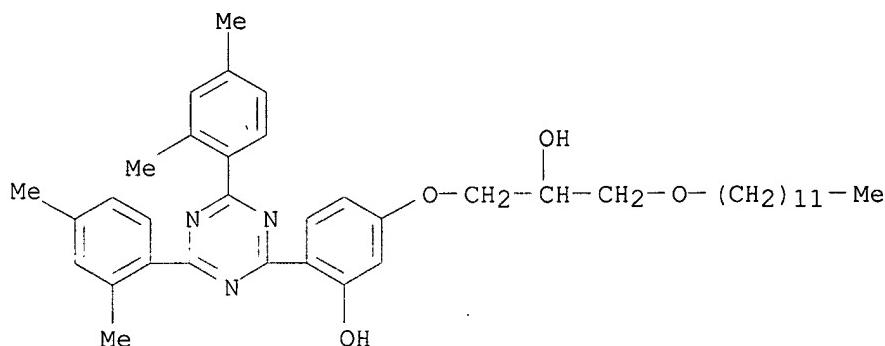


RN 174629-65-3 HCA

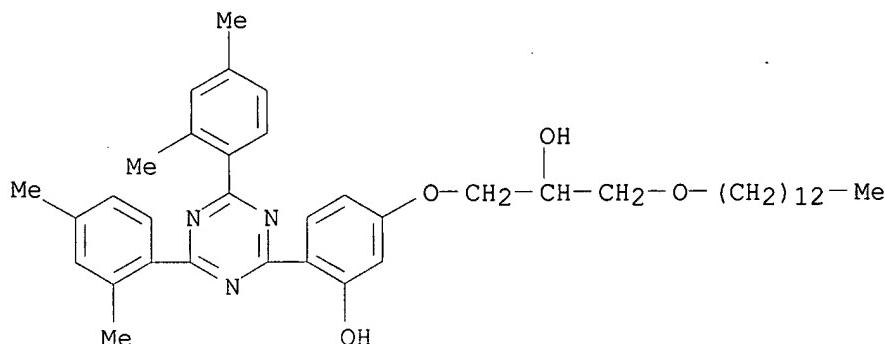
CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-[2-hydroxy-3-(isoctyloxy)propoxy]-(9CI) (CA INDEX NAME)



RN 178905-31-2 HCA
 CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-[3-(dodecylxy)-2-hydroxypropoxy]- (9CI) (CA INDEX NAME)



RN 178905-32-3 HCA
 CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-[2-hydroxy-3-(tridecylxy)propoxy]- (9CI) (CA INDEX NAME)



L54 ANSWER 11 OF 19 HCA COPYRIGHT 2003 ACS

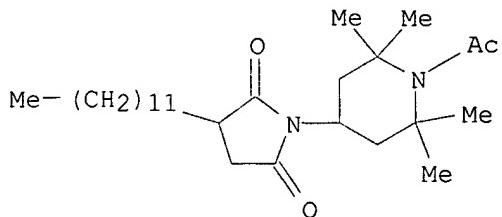
130:224375 Chemisorption and physical adsorption of light stabilizers on pigment and ultrafine particles in coatings. Haacke, G.; Longordo, E.; Brinen, J. S.; Andrawes, F. F.; Campbell, B. H. (Cytec Industries Inc., Stamford, CT, 06904-0060, USA). Journal of Coatings Technology, 71(888), 87-94 (English) 1999. CODEN: JCTEDL. ISSN: 0361-8773. Publisher: Federation of Societies for Coatings Technology.

AB Hindered amine light stabilizers (

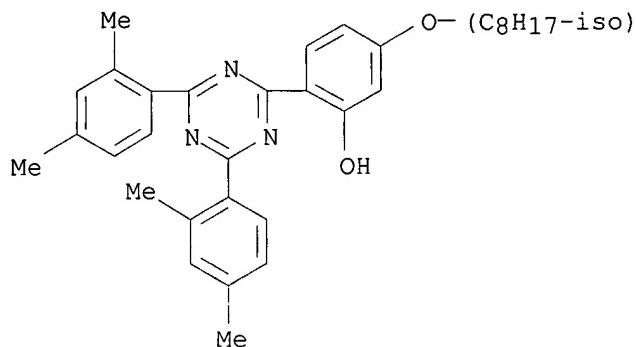
HALS) and UV absorbers (UVA) added to pigmented coatings adsorb on certain pigment and ultrafine oxide particles. Anal. of adsorption isotherms taken in xylene solns. and spectroscopic data revealed that chemisorption is the dominant interaction mechanism between the light stabilizers and the pigment particles. In contrast, the stabilizer interactions with ultrafine oxide particles are based on van der Waals forces, i.e., phys. adsorption. In thermoset coatings, the chemisorbed stabilizers remain bound to the pigment surface on cure. The phys. adsorbed stabilizers desorb on cure and migrate within the coatings. The chemistries involved in chemisorption were investigated using Fourier transform IR spectroscopy and time-of-flight secondary ion mass spectroscopy. Stabilizers contg. ester linkages hydrolyze to varying degrees into carboxylate salts and alcs. Acetyl groups also hydrolyze. Some of the chemisorbed light stabilizers lose the ability to protect coatings from photodegrdn.

- CC 42-6 (Coatings, Inks, and Related Products)
ST **hindered amine light stabilizer**
IT chemisorption adsorption pigment coating
Carbon black, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(Monarch 1300, **blended** with light stabilizers; chemisorption and phys. adsorption of light stabilizers on pigment and ultrafine particles in coatings)
IT **Amines**, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**hindered, light** stabilizers; chemisorption and phys. adsorption of light stabilizers on pigment and ultrafine particles in coatings)
IT 1309-37-1, Ferric oxide, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(Sicotrans Red, **blended** with light stabilizers; chemisorption and phys. adsorption of light stabilizers on pigment and ultrafine particles in coatings)
IT 7440-36-0, Antimony, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(chromium-doped titanium dioxide **mixts.**, Sicotan Yellow pigment; chemisorption and phys. adsorption of light stabilizers on pigment and ultrafine particles in coatings)
IT 41556-26-7, Tinuvin 292 84268-23-5, Tinuvin 384 104810-48-2, Tinuvin 1130 **106917-31-1**, Sanduvor 3058 122586-52-1, Tinuvin 123 137759-38-7, Cyagard UV 1164
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(light stabilizer; chemisorption and phys. adsorption of light stabilizers on pigment and ultrafine particles in coatings)
IT 7440-47-3, Chromium, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(titanium dioxide doped with, antimony **mixts.**, Sicotan Yellow pigment; chemisorption and phys. adsorption of light stabilizers on pigment and ultrafine particles in coatings)
IT **106917-31-1**, Sanduvor 3058 **137759-38-7**, Cyagard UV 1164
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(light stabilizer; chemisorption and phys. adsorption of light stabilizers on pigment and ultrafine particles in coatings)

RN 106917-31-1 HCA
 CN Piperidine, 1-acetyl-4-(3-dodecyl-2,5-dioxo-1-pyrrolidinyl)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 137759-38-7 HCA
 CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(isooctyloxy)- (9CI) (CA INDEX NAME)



L54 ANSWER 12 OF 19 HCA COPYRIGHT 2003 ACS
 130:53097 N,N',N''-Tris{2,4-bis[(hydrocarbyloxy-2,2,6,6-tetramethylpiperidin-4-yl)alkylamino]-s-triazin-6-yl}-3,3'-ethylenediaminodipropylamines, their isomers and bridged derivatives, preparation thereof, and organic compositions stabilized therewith. Galbo, James P.; Grace, Henry C.; Horsey, Douglas W.; Solera, Peter; Srinivasan, Rangarajan (Ciba Specialty Chemicals Corporation, USA). U.S. US 5844026 A 19981201, 16 pp. (English). CODEN: USXXAM. APPLICATION: US 1997-885613 19970630.

AB A mixt. of the title compds. having one unsubstituted N in the tetramine backbone, their pure isomers and alkane-bridged derivs., are particularly effective in stabilizing polymer compns., particularly flame-retardant polyolefin compns., greenhouse films, and paintable thermoplastic polyolefins, against heat, light, and oxidative degrdn. Thus, a mixt. of 6.4 g N,N'-bis(3-aminopropyl)ethylenediamine, 107.6 g (4 equiv.) 2,4-bis[(1-cyclohexyloxy-2,2,6,6-tetramethylpiperidin-4-yl)butylamino]-6-chloro-s-triazine (prepn. given) in cyclohexane, and 31.0 g 20% aq. NaOH is heated 4 h at 160.degree. and worked up to give 102 g dry neutral solid mixt. of title compds., isomers and bridged compds. which (0.4 wt.%) was used in making a 150-.mu. thick polyethylene greenhouse film which failed (50% loss of original elongation) after 300 KLYS exposure with pesticide treatment, compared with 160 for a film contg. 0.4 wt.% condensation product of 4,4'-hexamethylenebis(amino-2,2,6,6-tetramethylpiperidine) and 2,4-dichloro-6-tert-octylamino-s-triazine.

IC ICM C08K005-3435
 ICS C07D403-00

NCL 524100000

CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 5, 42

ST trisubstituted triazine **hindered amine** stabilizer
prepn; piperidinyl triazine **hindered amine** stabilizer
polymer; polyolefin stabilizer trisubstituted triazine **hindered amine**; polyethylene stabilizer trisubstituted triazine **hindered amine**; greenhouse film polyethylene stabilizer;
heat stabilizer trisubstituted triazine **hindered amine**
; light stabilizer trisubstituted triazine **hindered amine**
; antioxidant trisubstituted triazine **hindered amine**

IT Greenhouses
(films for; prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polyolefin)

IT Mulches
(films; prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polyethylene for)

IT Amines, preparation
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)
(**hindered**; prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer compns
.)

IT Phenols, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**hindered**; prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer compns. contg.)

IT Clothing
(hosier, socks; prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polypropene fibers for)

IT Pesticides
(prepn. of trisubstituted s-triazine **hindered amine** stabilizers for agricultural films exposed to)

IT Heat stabilizers

Light stabilizers
(prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer compns.)

IT Polycarbonates, uses

Polymers, uses

Polypropene fibers, uses
RL: POF (Polymer in formulation); USES (Uses)
(prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer compns:)

IT Polyolefins
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer compns.)

IT Antioxidants

Fireproofing agents

UV stabilizers
(prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer compns. contg.)

IT Coating materials
(prepn. of trisubstituted s-triazine **hindered amine** stabilizers for substrates with improved adhesion to)

IT Plastics, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(thermoplastics; prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer compns.)

- IT 1843-05-6, 2-Hydroxy-4-n-octyloxybenzophenone 2440-22-4
2725-22-6 3864-99-1, 5-Chloro-2-(2-hydroxy-3,5-di-tert-butylphenyl)-2H-benzotriazole 4221-80-1, 2,4-Di-tert-butylphenyl-3,5-di-tert-butyl-4-hydroxybenzoate 25973-55-1, 2-(2-Hydroxy-3,5-di-tert-amylphenyl)-2H-benzotriazole 70321-86-7 73936-91-1, 2-(2-Hydroxy-3-.alpha.-cumyl-5-tert-octylphenyl)-2H-benzotriazole
 RL: MOA (Modifier or additive use); USES (Uses)
 (UV absorber; prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer **compns.** contg.)
- IT 1709-70-2, 1,3,5-Trimethyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxybenzyl)benzene 2082-79-3 6683-19-8 27676-62-6 32687-78-8, 1,2-Bis(3,5-di-tert-butyl-4-hydroxyhydrocinnamoyl)hydrazine 40601-76-1 65140-91-2, Calcium [bis(ethyl 3,5-di-tert-butyl-4-hydroxybenzyl)phosphonate]
 RL: MOA (Modifier or additive use); USES (Uses)
 (antioxidant; prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer **compns.** contg.)
- IT 110-15-6D, Succinic acid, condensation products with hydroxypiperidines 7803-49-8D, Hydroxylamine, dialkyl derivs., uses 24860-22-8 26523-78-4, Tris(nonylphenyl) phosphite 26741-53-7 31570-04-4, Tris(2,4-di-tert-butylphenyl)phosphite 52722-86-8D, condensation products with succinic acid 52829-07-9, Bis(2,2,6,6-tetramethylpiperidin-4-yl)sebacate 61260-55-7D, condensation products with aminotriazines 63812-63-5D, condensation products with triazines 72058-41-4D, condensation products with hexamethylenebis(aminotetramethylpiperidine) 73640-96-7 80410-33-9, 2,2',2'''-Nitrilo[triethyltris(3,3',5,5'-tetra-tert-butyl-1,1'-biphenyl-2,2'-diyl)phosphite] 86624-80-8
106917-31-1 106990-43-6 118337-09-0 122586-52-1, Bis(1-octyloxy-2,2,6,6-tetramethylpiperidin-4-yl) sebacate 122616-76-6, Bis(1-cyclohexyloxy-2,2,6,6-tetramethylpiperidin-4-yl) sebacate 130048-69-0, 1-Cyclohexyloxy-2,2,6,6-tetramethylpiperidin-4-yl octadecanoate 144916-79-0 161717-32-4 164578-16-9, Methyl 3-(2,2,6,6-tetramethylpiperidin-4-yloxy)propylsilanediol homopolymer 164648-93-5 169198-26-9 183729-76-2, Bis(1-cyclohexyloxy-2,2,6,6-tetramethylpiperidin-4-yl) adipate 217084-89-4
 RL: MOA (Modifier or additive use); USES (Uses)
 (costabilizer; prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer **compns.** contg.)
- IT 1163-19-5, Decabromodiphenyl oxide 32588-76-4
 RL: MOA (Modifier or additive use); USES (Uses)
 (flame retardant; prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer **compns.** contg.)
- IT 75-91-2, tert-Butylhydroperoxide
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (oxidn.-coupling of cyclohexane or octane with triazines; in prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer **compns.**)
- IT 67231-98-5
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (oxidn.-coupling with (cyclo)alkanes; in prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer **compns.**)
- IT 110-82-7, Cyclohexane, reactions 111-65-9, Octane, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (oxidn.-coupling with triazines; in prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer **compns.**)
 .)
- IT 122587-12-6P 150686-80-9P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(prepn. and reaction with bis(aminopropyl)ethylenediamine; in prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer **compns.**)

IT 122586-79-2P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction with butylamine; in prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer **compns.**)

IT 122586-84-9P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction with cyanuric chloride; in prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer **compns.**)

IT 217084-73-6P 217084-74-7P 217084-76-9P 217084-77-0P 217084-80-5P
217084-84-9P
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)
(prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer **compns.**)

IT 9002-88-4 9003-07-0 25085-53-4, Isotactic polypropylene
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer **compns.**)

IT 6601-22-5 141805-31-4
RL: MOA (Modifier or additive use); USES (Uses)
(prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer **compns.** contg.)

IT 10563-26-5, N,N'-Bis(3-aminopropyl)ethylenediamine
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with bis[(alkyloxypiperidinyl)alkylamino]chlorotriazines; in prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer **compns.**)

IT 2896-70-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with cyclohexyl iodide; in prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer **compns.**)

IT 109-73-9, 1-Butanamine, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with cyclohexyloxytetramethylpiperidinone; in prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer **compns.**)

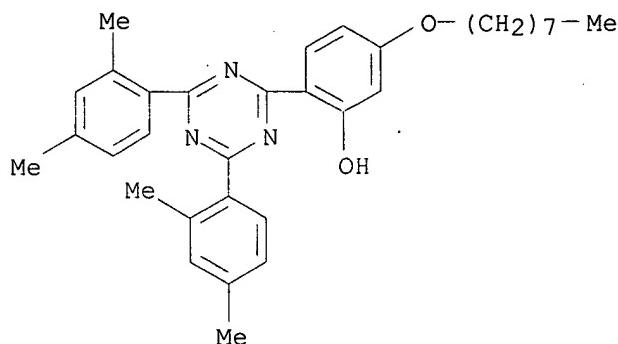
IT 108-77-0, Cyanuric chloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with tetramethylpiperidines; in prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer **compns.**)

IT 626-62-0, Cyclohexyl iodide
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with tetramethylpiperidinones; in prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer **compns.**)

IT 2725-22-6
RL: MOA (Modifier or additive use); USES (Uses)
(UV absorber; prepn. of trisubstituted s-triazine **hindered amine** stabilizers for polymer **compns.** contg.)

RN 2725-22-6 HCA

CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)-(9CI) (CA INDEX NAME)

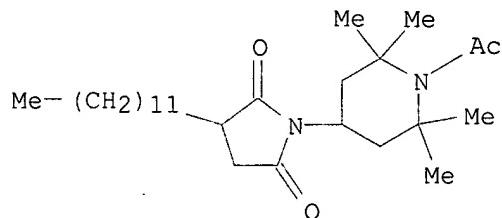


IT 106917-31-1

RL: MOA (Modifier or additive use); USES (Uses)
(costabilizer; prepn. of trisubstituted s-triazine hindered
amine stabilizers for polymer compns. contg.)

RN 106917-31-1 HCA

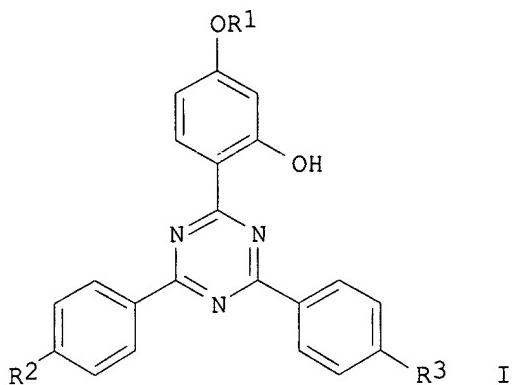
CN Piperidine, 1-acetyl-4-(3-dodecyl-2,5-dioxo-1-pyrrolidinyl)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



L54 ANSWER (13) OF 19 HCA COPYRIGHT 2003 ACS

127:177288 Weather-resistant acetal resin compositions with good
mold releasability and their moldings for automotive parts. Ariyasu,
Hideyuki; Hiroya, Mitsumasa (Asahi Chemical Industry Co., Ltd., Japan).
Jpn. Kokai Tokkyo Koho JP 09194682 A2 19970729 Heisei, 20 pp. (Japanese).
CODEN: JKXXAF. APPLICATION: JP 1996-7712 19960119.

GI



- AB Title **compns.**, useful for automotive parts, contain acetal resins 100, (hydroxyphenyl)triazines I (R1 = H, C1-18 alkyl, halo- or C1-12 alkoxy-substituted C2-6 alkyl, PhCH₂; R2, R3 = H, Me) 0.01-5.0, and R1CONHR2NHCOR3 (R1, R3 = C1-30 alkyl; R2 = C2-10 alkylene) 0.005-5.0 parts. Thus, a red injection molding contg. polyformaldehyde acetate (MI 22.3) 100, I (R1 = hexyloxy, R2 = R3 = H) 0.50, and ethylenebis(stearamide) 0.01 part was subjected to an accelerated weathering test for 400 h to show no crack formation.
- IC ICM C08L059-00
ICS C08J005-00
- CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 38
- IT UV stabilizers
 ((hydroxyphenyl)triazines; weather-resistant acetal resin **compns.** contg. (hydroxyphenyl)triazines and amides with good mold releasability for automotive parts)
- IT Polyamides, properties
Polyoxyalkylenes, properties
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (additive; weather-resistant acetal resin **compns.** contg.
 (hydroxyphenyl)triazines and amides with good mold releasability for automotive parts)
- IT Parting materials
 (amides; weather-resistant acetal resin **compns.** contg.
 (hydroxyphenyl)triazines and amides with good mold releasability for automotive parts)
- IT Fatty acids, properties
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (calculus salts, CaCl₂- or Ca(OH)₂-contg., additives; weather-resistant acetal resin **compns.** contg. (hydroxyphenyl)triazines and amides with good mold releasability for automotive parts)
- IT Amines, properties
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (hindered; weather-resistant acetal resin **compns.**
 contg. (hydroxyphenyl)triazines and amides with good mold releasability for automotive parts)
- IT Automobiles
 (parts; weather-resistant acetal resin **compns.** contg.
 (hydroxyphenyl)triazines and amides with good mold releasability for automotive parts)
- IT Polyesters, properties
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)

- (stabilizers; weather-resistant acetal resin compns. contg.
(hydroxyphenyl)triazines and amides with good mold releasability for
automotive parts)
- IT Heat stabilizers
(weather-resistant acetal resin compns. contg.
(hydroxyphenyl)triazines and amides with good mold releasability for
automotive parts)
- IT Polyoxymethylenes, preparation
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP
(Properties); TEM (Technical or engineered material use); PREP
(Preparation); USES (Uses)
(weather-resistant acetal resin compns. contg.
(hydroxyphenyl)triazines and amides with good mold releasability for
automotive parts)
- IT Polyamides, properties
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(weather-resistant acetal resin compns. contg.
(hydroxyphenyl)triazines and amides with good mold releasability for
automotive parts)
- IT 10043-52-4, Calcium chloride (CaCl₂), properties
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(Ca stearate contg., additive; weather-resistant acetal resin
compns. contg. (hydroxyphenyl)triazines and amides with good
mold releasability for automotive parts)
- IT 1592-23-0, Calcium stearate
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(CaCl₂-contg., additive; weather-resistant acetal resin compns
. contg. (hydroxyphenyl)triazines and amides with good mold
releasability for automotive parts)
- IT 147315-50-2, 2-(4,6-Diphenyl-1,3,5-triazin-2-yl)-5-hexyloxyphenol
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(UV absorber; weather-resistant acetal resin compns. contg.
(hydroxyphenyl)triazines and amides with good mold releasability for
automotive parts)
- IT 871-79-4, Ethylenediamine monostearamide 24937-14-2,
Poly(.beta.-alanine) 25322-68-3 25513-34-2, Poly(.beta.-alanine)
32131-17-2, Nylon 66, properties
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(additive; weather-resistant acetal resin compns. contg.
(hydroxyphenyl)triazines and amides with good mold releasability for
automotive parts)
- IT 1305-62-0, Calcium hydroxide, properties
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(fatty acid calcium salts contg., additive; weather-resistant acetal
resin compns. contg. (hydroxyphenyl)triazines and amides with
good mold releasability for automotive parts)
- IT 110-30-5, Ethylenebis(stearamide)
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(mold releasing agent; weather-resistant acetal resin compns.
contg. (hydroxyphenyl)triazines and amides with good mold releasability
for automotive parts)
- IT 23949-66-8, 2-Ethoxy-2'-ethyloxalic acid bis(anilide) 41556-26-7,
Bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate 52829-07-9,
Bis(2,2,6,6-tetramethyl-4-piperidyl) sebacate 63843-89-0,
Bis(1,2,2,6,6-pentamethyl-4-piperidyl) 2-(3,5-di-tert-butyl-4-
hydroxybenzyl)-2-butylmalonate 65447-77-0, Dimethyl
succinate-1-(2-hydroxyethyl)-4-hydroxy-2,2,6,6-tetramethylpiperidine
copolymer 70321-86-7, 2-[2'-Hydroxy-3',5'-bis(.alpha.,.alpha.-
dimethylbenzyl)phenyl]benzotriazole 115055-30-6
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)

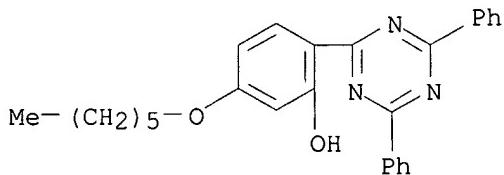
(stabilizer; weather-resistant acetal resin compns. contg.
 (hydroxyphenyl)triazines and amides with good mold releasability for
 automotive parts)

IT 24969-26-4P, 1,3-Dioxolane-trioxane copolymer 25231-38-3P
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP
 (Properties); TEM (Technical or engineered material use); PREP
 (Preparation); USES (Uses)
 (weather-resistant acetal resin compns. contg.
 (hydroxyphenyl)triazines and amides with good mold releasability for
 automotive parts)

IT 9002-81-7, Poly(oxymethylene)
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
 engineered material use); USES (Uses)
 (weather-resistant acetal resin compns. contg.
 (hydroxyphenyl)triazines and amides with good mold releasability for
 automotive parts)

IT 147315-50-2, 2-(4,6-Diphenyl-1,3,5-triazin-2-yl)-5-hexyloxyphenol
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (UV absorber; weather-resistant acetal resin compns. contg.
 (hydroxyphenyl)triazines and amides with good mold releasability for
 automotive parts)

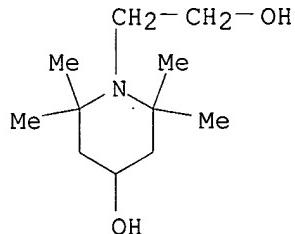
RN 147315-50-2 HCA
 CN Phenol, 2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-(hexyloxy)- (9CI) (CA INDEX
 NAME)



IT 65447-77-0, Dimethyl succinate-1-(2-hydroxyethyl)-4-hydroxy-
 2,2,6,6-tetramethylpiperidine copolymer
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (stabilizer; weather-resistant acetal resin compns. contg.
 (hydroxyphenyl)triazines and amides with good mold releasability for
 automotive parts)

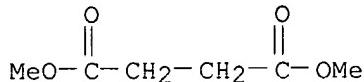
RN 65447-77-0 HCA
 CN Butanedioic acid, dimethyl ester, polymer with 4-hydroxy-2,2,6,6-
 tetramethyl-1-piperidineethanol (9CI) (CA INDEX NAME)

CM 1

CRN 52722-86-8
CMF C11 H23 N O2

CM 2

CRN 106-65-0
CMF C6 H10 O4



L54 ANSWER 14 OF 19 HCA COPYRIGHT 2003 ACS
 125:331722 One-component thermosetting coating compositions.
 Ohsawa, Mika; Marutani, Yoshiaki; Uemura, Hiroyuki; Koga, Kazuhi; Kubota, Hiroshi (Mazda Motor Corp., Japan). Ger. Offen. DE 19612746 A1 19961002, 44 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1996-19612746 19960329. PRIORITY: JP 1995-75730 19950331.

- AB Title compns. with good pot life, giving weather-resistant films, contain (A) an oligomers or polymers having an acid anhydride, a blocked OH, and an epoxy group in the same or different mol. (B) a heat-reactive crosslinking catalyst base on a complex of an organometallic compd. and an electron donor or an onium salt, (C) an UV absorber based on a triazine or oxalic acid anilide, and (D) hindered amine light stabilizer based on piperidine derivs. or a phenolic antioxidant. A typical polymer having all the groups in 1 mol. was manufd. by polymn. of .gamma.-methacryloyloxypropyltrimethoxysilane 62, glycidyl methacrylate 36, itaconic acid anhydride 28, trimethylsiloxyethyl methacrylate 47, styrene 25, Bu acrylate 16, and 2-ethylhexyl methacrylate 36 parts.
- IC ICM C09D163-00
 ICS C09D133-04; C09D135-00; C09K015-30; C09K015-08; C09K015-32;
 C09K015-20; C09D007-12; B05D007-16
- ICA C09D007-02; C09D007-06; C09D017-00; C09D005-36; C08G059-40; B01J031-12;
 C08F020-10; C08F022-04; C08F020-26
- ICI C09D133-06, C09D133-14
- CC 42-10 (Coatings, Inks, and Related Products)
- ST one component thermosetting coating weather resistant; methylsiloxyethyl methacrylate copolymer coating; styrene copolymer thermosetting coating; itaconic anhydride copolymer coating; glycidyl methacrylate copolymer coating; methacryloyloxypropyltrimethoxysilane copolymer coating; anhydride hydroxy epoxy polymer thermosetting coating; oxalanilide UV absorber thermosetting coating; phenolic antioxidant thermosetting coating; piperidine deriv light stabilizer thermosetting coating; hindered amine light stabilizer thermosetting coating; triazine UV absorber weather resistant coating; onium salt crosslinking catalyst thermosetting coating; electron donor complex crosslinking catalyst coating; organometallic complex crosslinking catalyst thermosetting coating
- IT Electron donors
 (crosslinking catalysts; one-component thermosetting coating compns. with good pot life for weather resistant films)
- IT Onium compounds
- Organometallic compounds
 RL: CAT (Catalyst use); USES (Uses)
 (crosslinking catalysts; one-component thermosetting coating compns. with good pot life for weather resistant films)
- IT Light stabilizers
 (hindered piperidine derivs.; one-component thermosetting coating compns. with good pot life for weather resistant films)
- IT Crosslinking catalysts

(metal complexes or onium salts; one-component thermosetting coating **compns.** with good pot life for weather resistant films)

IT Antioxidants
(phenolic; one-component thermosetting coating **compns.** with good pot life for weather resistant films)

IT Light stabilizers
(UV, triazine derivs. or oxalic acid anilides; one-component thermosetting coating **compns.** with good pot life for weather resistant films)

IT Amines, uses
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(hindered, light stabilizer; one-component thermosetting coating **compns.** with good pot life for weather resistant films)

IT Coating materials
(one-component, thermosetting, one-component thermosetting coating **compns.** with good pot life for weather resistant films)

IT 183202-67-7
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(UV absorber; one-component thermosetting coating **compns.** with good pot life for weather resistant films)

IT 2082-79-3 31570-04-4, Irgafos 168
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(antioxidant; one-component thermosetting coating **compns.** with good pot life for weather resistant films)

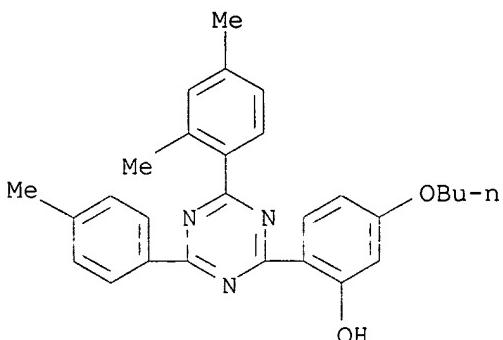
IT 77-58-7, DiButyltin dilaurate 110-86-1, Pyridine, uses 121-44-8, uses 429-42-5, Tetrabutylammonium tetrafluoroborate 554-70-1, Triethylphosphine 557-05-1, Zinc stearate 733-44-8, Tetraethylammonium p-toluenesulfonate 3109-63-5, Tetrabutylammonium hexafluorophosphate 7428-48-0, Lead stearate 14024-63-6, Zinc acetylacetone 15306-30-6, Lead laurate 135842-77-2, Adeka Opton CP 66 183563-38-4, Sanaid SIL 100
RL: CAT (Catalyst use); USES (Uses)
(crosslinking catalyst; one-component thermosetting coating **compns.** with good pot life for weather resistant films)

IT 82493-14-9, Sanduvor 3206 106917-31-1, Sanduvor 3058
122586-52-1, Tinuvin 123
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(light stabilizer; one-component thermosetting coating **compns.** with good pot life for weather resistant films)

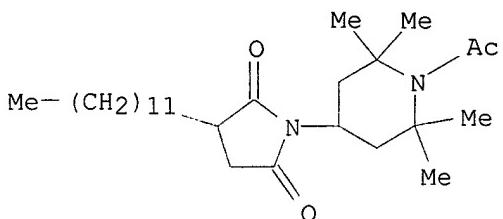
IT 91145-12-9P 161486-12-0P 172085-89-1P 174188-30-8P 174188-31-9P
174188-33-1P 174188-34-2P 174188-35-3P 174188-36-4P 174188-37-5P
183202-52-0P 183202-54-2P 183202-56-4P 183202-57-5P 183202-58-6P
183202-59-7P 183202-62-2P 183202-64-4P 183202-65-5P
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(one-component thermosetting coating **compns.** with good pot life for weather resistant films)

IT 183202-67-7
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(UV absorber; one-component thermosetting coating **compns.** with good pot life for weather resistant films)

RN 183202-67-7 HCA
CN Phenol, 5-butoxy-2-[4-(2,4-dimethylphenyl)-6-(4-methylphenyl)-1,3,5-triazin-2-yl]- (9CI) (CA INDEX NAME)



- IT 106917-31-1, Sanduvor 3058
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
 (light stabilizer; one-component thermosetting coating compns
 with good pot life for weather resistant films)
- RN 106917-31-1 HCA
- CN Piperidine, 1-acetyl-4-(3-dodecyl-2,5-dioxo-1-pyrrolidinyl)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



- L54 ANSWER (15 OF 19) HCA COPYRIGHT 2003 ACS
 125:116227 Thermoplastic polyoxymethylene-stabilizer compositions
 for weather-resistant moldings. Kielhorst-Bayer, Sabine; Eichenauer,
 Ulrich (BASF A.-G., Germany). Ger. Offen. DE 4442167 A1 19960530, 20 pp.
 (German). CODEN: GWXXBX. APPLICATION: DE 1994-4442167 19941126.
- AB The title compns. contain a polyoxymethylene (e.g., butanediol formal-trioxane copolymer), a triazine deriv. [e.g., 2-(4,6-diphenyl-s-triazin-2-yl)-5-hexyloxyphenol] or isocyanurate (e.g., triglycidyl isocyanurate), a sterically hindered phenol (e.g., Irganox 259 or Irganox 1010), a sterically hindered amine (e.g., Tinuvin 622 LD or Chimasorb 944), and, optionally, .gtoreq.1 stabilizer selected from benzotriazole, benzophenone, or arom. benzoate derivs.
- IC ICM C08L059-00
 ICS C08K005-3492; C08K005-13; C08K005-17; D01F006-94
- ICA C08K005-3475; C08K005-07; C08J005-00; C08J005-18
- ICI C08K005-3492, C08K005-15
- CC 37-6 (Plastics Manufacture and Processing)
 Section cross-reference(s): 38
- ST polyoxymethylene light stabilizer weather resistance; phenol hindered stabilizer polyoxymethylene; amine hindered stabilizer polyoxymethylene; triazine deriv stabilizer polyoxymethylene; isocyanurate deriv stabilizer polyoxymethylene
- IT Light stabilizers
 (hindered amines and phenols; in polyoxymethylene compns. for weather-resistant moldings)

IT **Amines, uses**
 Phenols, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (hindered, stabilizers; in polyoxymethylene compns.
 for weather-resistant moldings)

IT 991-84-4, Irganox 565 2451-62-9, Triglycidyl isocyanurate 6683-19-8,
 Irganox 1010 35074-77-2, Irganox 259 36443-68-2, Irganox 245
 52829-07-9 **65447-77-0**, Tinuvin 622 LD 71878-19-8, Chimassorb
 944 109423-00-9 **147315-50-2**, 2-(4,6-Diphenyl-s-triazin-2-yl)-5-
 hexyloxyphenol
 RL: MOA (Modifier or additive use); USES (Uses)
 (stabilizer; in polyoxymethylene compns. for
 weather-resistant moldings)

IT **65447-77-0**, Tinuvin 622 LD **147315-50-2**,
 2-(4,6-Diphenyl-s-triazin-2-yl)-5-hexyloxyphenol
 RL: MOA (Modifier or additive use); USES (Uses)
 (stabilizer; in polyoxymethylene compns. for
 weather-resistant moldings)

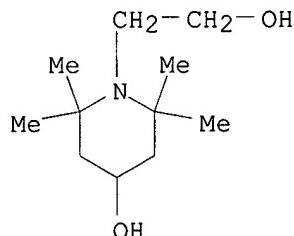
RN 65447-77-0 HCA

CN Butanedioic acid, dimethyl ester, polymer with 4-hydroxy-2,2,6,6-
 tetramethyl-1-piperidineethanol (9CI) (CA INDEX NAME)

CM 1

CRN 52722-86-8

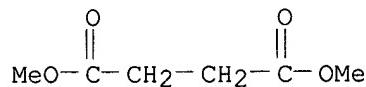
CMF C11 H23 N O2



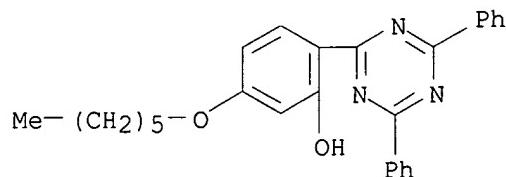
CM 2

CRN 106-65-0

CMF C6 H10 O4



RN 147315-50-2 HCA

CN Phenol, 2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-(hexyloxy)- (9CI) (CA INDEX
 NAME)

L54 ANSWER 16 OF 19 HCA COPYRIGHT 2003 ACS

125:13355 Migration of light stabilizers in acrylic/melamine clearcoats.
 Haacke, G.; Andrawes, F. F.; Campbell, B. H. (Research & Development, Cytec Industries Inc., Stamford, CT, 06904, USA). Journal of Coatings Technology, 68(855), 57-62 (English) 1996. CODEN: JCTEDL. ISSN: 0361-8773. Publisher: Federation of Societies for Coatings Technology.

AB Exptl. techniques have been developed to investigate the migration of UV absorbers and **hindered amine light** stabilizers taking place in acrylic/melamine clearcoats during cure. The basic approach consisted of microtoming the coatings into thin sections and measuring the additive concn. of each section. The stabilizer migration within single-layer coatings and between adjacent clearcoat layers was investigated. The effect of resin viscosity and layer swelling on the migration characteristics was studied. Stabilizer losses at the coating surface and migration into plastic substrates on cure were also detd.

CC 42-5 (Coatings, Inks, and Related Products)

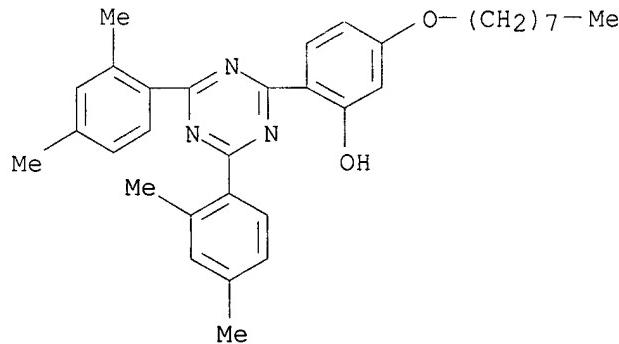
IT 2725-22-6, Cyagard UV 1164 106917-31-1, Sanduvor 3058
163151-03-9, Tinuvin 384RL: MOA (Modifier or additive use); USES (Uses)
(migration of light stabilizers in acrylic/melamine clearcoats)

IT 2725-22-6, Cyagard UV 1164 106917-31-1, Sanduvor 3058

RL: MOA (Modifier or additive use); USES (Uses)
(migration of light stabilizers in acrylic/melamine clearcoats)

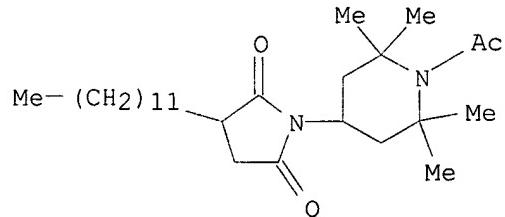
RN 2725-22-6 HCA

CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)-(9CI) (CA INDEX NAME)



RN 106917-31-1 HCA

CN Piperidine, 1-acetyl-4-(3-dodecyl-2,5-dioxo-1-pyrrolidinyl)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

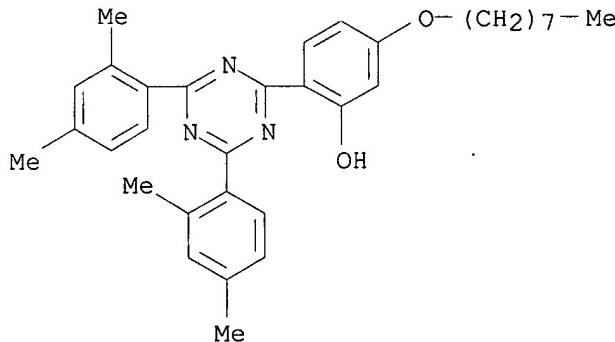


L54 ANSWER 17 OF 19 HCA COPYRIGHT 2003 ACS

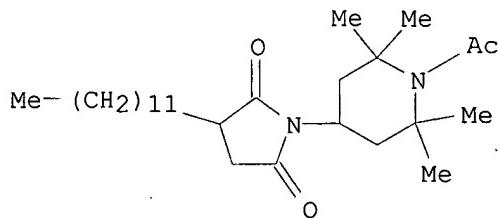
118:215050 Highly glossy fluoropolymer coatings for aluminum coils. Moyle,

Richard T.; Soltwedel, Jeffrey N. (Morton International, Inc., USA). U.S. US 5178915 A 19930112, 9 pp. (English). CODEN: USXXAM. APPLICATION: US 1992-818821 19920110.

- AB The title catalyst-free coatings comprise OH-contg. fluoropolymers, crosslinkers (aliph. polyisocyanates, melamine resins), BuOH (solvent), UV stabilizers (free radical scavengers) and UV screening agents. Thus, a compn. comprised Lumiflon 552, Desmodur BL 3175A, Cyanamid UV 1164L, Sanduvor 3058, BuOH, a defoamer, and dibasic ester viscosity modifiers and was curable on an Al substrate in 20 min at 349.degree..
- IC ICM C08K005-3492
ICS B05D007-14
- NCL 427318000
- CC 42-10 (Coatings, Inks, and Related Products)
Section cross-reference(s): 56
- IT 71-36-3, Butanol, uses 106-65-0 627-93-0 1119-40-0, Dimethyl glutarate 2725-22-6 9003-08-1, Cymel 325 106917-31-1
RL: USES (Uses)
(fluoro polyurethane coatings contg., glossy, for aluminum coils)
- IT 2725-22-6 106917-31-1
RL: USES (Uses)
(fluoro polyurethane coatings contg., glossy, for aluminum coils)
- RN 2725-22-6 HCA
- CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)-(9CI) (CA INDEX NAME)



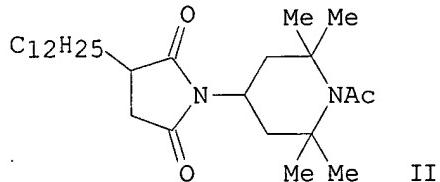
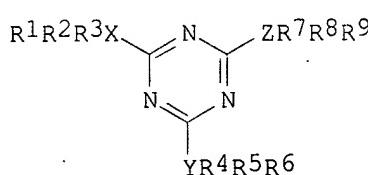
- RN 106917-31-1 HCA
CN Piperidine, 1-acetyl-4-(3-dodecyl-2,5-dioxo-1-pyrrolidinyl)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



L54 ANSWER 18 OF 19 HCA COPYRIGHT 2003 ACS
115:282137 Stabilization of high-solids coating with liquid compositions of triazine UV absorbers and preparation of the absorbers. Waterman, Paul Sheldon (American Cyanamid Co., USA). Eur. Pat. Appl. EP 444323 A2 19910904, 15 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE. (English). CODEN:

EPXXDW. APPLICATION: EP 1990-125824 19901231. PRIORITY: US 1990-486625
19900228.

GI



AB Polymer coatings are stabilized against light degrdn. by addn. of a liq. compn. comprising an org. solvent and .gt;eq. 40 wt% triaryltriazines I (X,Y,Z = multivalent arom. group, R1-9 = H, OH, alkyl, alkoxy, sulfonic, CO₂H, halo, haloalkyl, or acylamino, with .gt;eq. 1 of R1-9 = OH and attached ortho to the point of attachment to the triazine ring and .gt;eq. 1 of R1-9 = alkoxy and attached para to the point of attachment to the triazine ring). Thus, 2,4-bis(2,4-dimethylphenyl)-6-(2,4-dihydroxyphenyl)-1,3,5-triazine was refluxed with mixed isomeric octyl chlorides (95% C8) in MeCOBu-iso at 122.degree. to give 2,4-bis(2,4-dimethylphenyl)-6-[2-hydroxy-4-(C8-alkoxy)phenyl]-1,3,5-triazine (II). An acrylic coating compn. contg. 2% II and 1% hindered amine light stabilizer applied to a steel panel precoated with a primer and a white base layer and cured 30 min at 120.degree. to give a coating with 93% 20.degree. gloss retention after 4000 h in an accelerated weather test.

IC ICM C07D251-24

ICS C08K005-3492

CC 42-5 (Coatings, Inks, and Related Products)
Section cross-reference(s): 37

IT 1668-53-7

RL: RCT (Reactant); RACT (Reactant or reagent)
(alkylation of, with isomeric octyl chloride mixt.)

IT 106917-31-1

RL: USES (Uses)
(light stabilizer, with substituted triaryltriazine UV absorbers, for coatings)

IT 137759-38-7P

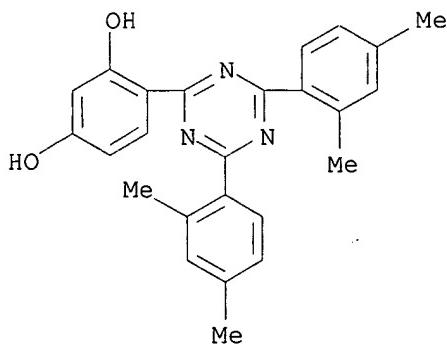
RL: PREP (Preparation)
(prepn. of, as UV stabilizers for coatings)

IT 1668-53-7

RL: RCT (Reactant); RACT (Reactant or reagent)
(alkylation of, with isomeric octyl chloride mixt.)

RN 1668-53-7 HCA

CN 1,3-Benzenediol, 4-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]- (9CI)
(CA INDEX NAME)

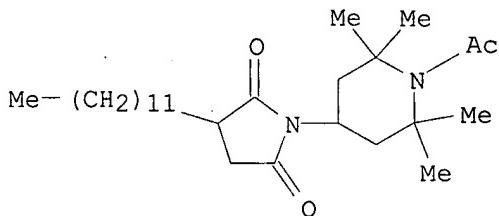


IT 106917-31-1

RL: USES (Uses)
(light stabilizer, with substituted triaryltriazine UV absorbers, for coatings)

RN 106917-31-1 HCA

CN Piperidine, 1-acetyl-4-(3-dodecyl-2,5-dioxo-1-pyrrolidinyl)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)

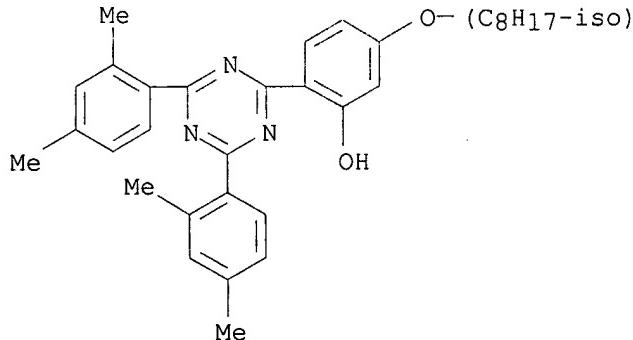


IT 137759-38-7P

RL: PREP (Preparation)
(prepn. of, as UV stabilizers for coatings)

RN 137759-38-7 HCA

CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(isooctyloxy)- (9CI) (CA INDEX NAME)



L54 ANSWER 19 OF 19 HCA COPYRIGHT 2003 ACS

106:86298 Synergistic stabilizers for high-solids coatings. Susi, Peter V.
(American Cyanamid Co., USA). U.S. US 4619956 A 19861028, 12 pp.
(English). CODEN: USXXAM. APPLICATION: US 1985-730146 19850503.

AB Light stabilizers and antioxidants contg. 2,2,6,6-tetraalkylpiperidines or

their salts or metal complexes and 2,4,6-triaryl-s-triazines are synergistic in moldings and coatings. Thus, a 75% acrylic polymer dispersion contg. 0.5% Tinuvin 440 (hindered piperidine) and 0.5% 2,6-bis(2,4-dimethylphenyl)-4-(2-hydroxy-4-octyloxyphenyl)-1,3,5-triazine (I) was coated (2 mil) on Bonderized steel and cured at 120.degree. for 30 min. After 1400 h accelerated weathering, gloss retention (20.degree.) was 62% and yellowness index 14, vs. 0 and 26, resp., without I.

IC ICM C08K005-34

NCL 524087000

CC 42-5 (Coatings, Inks, and Related Products)

Section cross-reference(s): 37

IT 1668-53-7 2725-22-6 41556-26-7, Tinuvin 765
82537-67-5 106908-58-1 106917-30-0 106917-31-1

RL: USES (Uses)

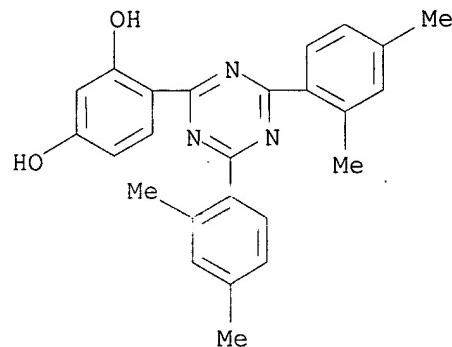
(stabilizers, synergistic, for high-solids coatings)

IT 1668-53-7 2725-22-6 106917-31-1

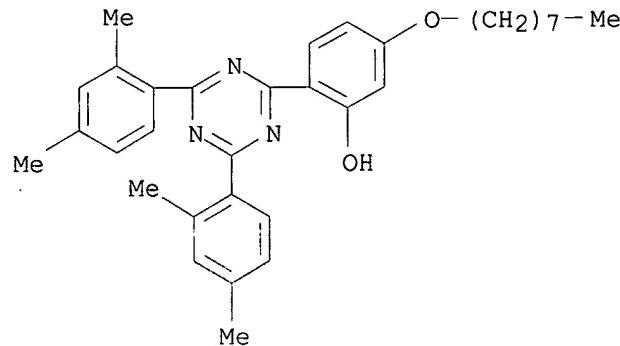
RL: USES (Uses)

(stabilizers, synergistic, for high-solids coatings)

RN 1668-53-7 HCA

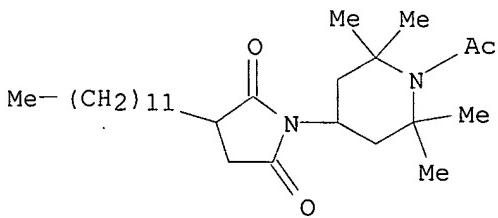
CN 1,3-Benzenediol, 4-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]- (9CI)
(CA INDEX NAME)

RN 2725-22-6 HCA

CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)-
(9CI) (CA INDEX NAME)

RN 106917-31-1 HCA

CN Piperidine, 1-acetyl-4-(3-dodecyl-2,5-dioxo-1-pyrrolidinyl)-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



=> d L59 1-12 cbib abs hitind hitstr

L59 ANSWER ⑪ OF 12 HCA COPYRIGHT 2003 ACS

137:311720 Triazine-based ultraviolet absorber for resin **composition**
with good decoloration resistance. Negishi, Yoshinori; Tobita, Etsuo;
Ayabe, Takashi (Asahi Denka Kogyo K. K., Japan). PCT Int. Appl. WO
2002081559 A1 20021017, 62 pp. DESIGNATED STATES: W: CN, KR, US; RW: AT,
BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR.
(Japanese). CODEN: PIXXD2. APPLICATION: WO 2002-JP3479 20020408.
PRIORITY: JP 2001-109097 20010406; JP 2001-394985 20011226.

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB Title UV absorber is represented by the formula of I, [R: C1-4 alkyl; n: integer 0-2; X: -COR1, -COR'COOH, -COR'COOR2, II; R1: C5-60 aliph. group, alicyclic group, alkyl contg. alicyclic group at an end or in the chain, branched alkyl, or linear alkyl; R2: C1-18 alkyl or (poly)alkyleneoxyalkyl; R': C5-60 aliph. diyl group]. Thus, 2-[2-hydroxy-4-(2-hydroxyethoxy)phenyl]-4,6-diphenyl-1,3,5-triazine 7.94, dichlorohexanoic acid 2.58, xylene 50, and p-toluenesulfonic acid 0.10 g were refluxed at 140.degree. for 10 h to give a compd. (yield 81%) for bisphenol A-type polycarbonate moldings, showing Yellow Index YI 13.5 and index difference (1050 h) .DELTA.Y 4.9.

IC ICM C08K005-3492
ICS C08K005-3435; C08L101-00; C09K003-00; C07D251-24

CC 37-6 (Plastics Manufacture and Processing)

ST triazine deriv UV absorber polycarbonate **comprn**

IT Polyamides, properties

RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(Novamid 1020A7; prepn. of triazine-based UV absorber for resin **comprn.** with good decoloration resistance)

IT **Polyesters**, properties

RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(Novapet 6101G30, Novapet 6010G30; prepn. of triazine-based UV absorber for resin **comprn.** with good decoloration resistance)

IT **Light stabilizers**

(**hindered amine**-based; prepn. of triazine-based UV absorber for resin **comprn.** with good decoloration resistance)

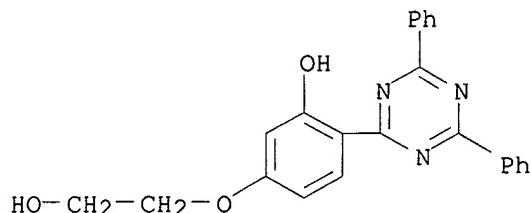
IT **Amines**, uses

RL: MOA (Modifier or additive use); USES (Uses)

(**hindered**; prepn. of triazine-based UV absorber for resin

- compn. with good decoloration resistance)
- IT Decolorization
UV stabilizers
(prepn. of triazine-based UV absorber for resin compn. with
good decoloration resistance)
- IT Polyamides, properties
Polycarbonates, properties
Polyoxyphenylenes
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)
(prepn. of triazine-based UV absorber for resin compn. with
good decoloration resistance)
- IT Polyolefins
RL: TEM (Technical or engineered material use); USES (Uses)
(prepn. of triazine-based UV absorber for resin compn. with
good decoloration resistance)
- IT 25038-54-4, Nylon 6, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)
(Novamid 1020A7; prepn. of triazine-based UV absorber for resin
compn. with good decoloration resistance)
- IT 25038-59-9, Poly(ethylene terephthalate), properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)
(Novapet 6101G30, Novapet 6010G30; prepn. of triazine-based UV absorber
for resin compn. with good decoloration resistance)
- IT 184782-88-5P, 2-[2-Hydroxy-4-(2-hydroxyethoxy)phenyl]-4,6-
diphenyl-1,3,5-triazine
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
(Reactant or reagent)
(intermediate; prepn. of triazine-based UV absorber for resin
compn. with good decoloration resistance)
- IT 470709-86-5P 470709-87-6P 470709-88-7P
470709-89-8P 470709-90-1P 470709-91-2P
470709-92-3P 470709-93-4P 470709-94-5P
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP
(Preparation); USES (Uses)
(prepn. of triazine-based UV absorber for resin compn. with
good decoloration resistance)
- IT 52829-07-9, Bis(2,2,6,6-tetramethyl-4-piperidyl) sebacate 64022-61-3,
Tetrakis(2,2,6,6-tetramethyl-4-piperidyl)-1,2,3,4-butane tetracarboxylate
80387-98-0 91788-83-9 107119-91-5, ADK Stab LA 62 115055-30-6
, ADK Stab LA 63 136960-36-6, Tinuvin 944
RL: MOA (Modifier or additive use); USES (Uses)
(prepn. of triazine-based UV absorber for resin compn. with
good decoloration resistance)
- IT 9002-88-4, Hi-zex 9003-56-9, Stylac 100 9010-79-1, Ethylene-propylene
copolymer 9011-87-4, Delpet 60N 24936-68-3, properties 24968-12-5,
Novadur 5010R5 25037-45-0 25085-53-4, Profax 6501 25805-30-5, Xyron
500H 26062-94-2, Poly(butylene terephthalate) 106565-43-9,
Ethylene-propylene block copolymer
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)
(prepn. of triazine-based UV absorber for resin compn. with
good decoloration resistance)
- IT 184782-88-5P, 2-[2-Hydroxy-4-(2-hydroxyethoxy)phenyl]-4,6-
diphenyl-1,3,5-triazine
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
(Reactant or reagent)
(intermediate; prepn. of triazine-based UV absorber for resin

RN 184782-88-5 HCA
CN Phenol, 2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-(2-hydroxyethoxy)- (9CI)
(CA INDEX NAME)



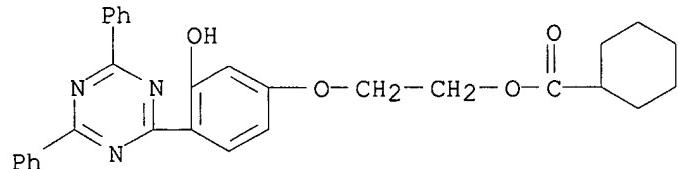
IT 470709-86-5P 470709-87-6P 470709-88-7P
470709-89-8P 470709-90-1P 470709-91-2P
470709-92-3P 470709-93-4P 470709-94-5P

RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)

(prepn. of triazine-based UV absorber for resin compn. with good decoloration resistance)

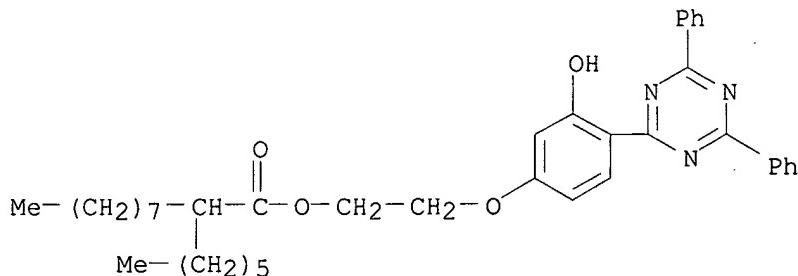
RN 470709-86-5 HCA

CN Cyclohexanecarboxylic acid, 2-[4-(4,6-diphenyl-1,3,5-triazin-2-yl)-3-hydroxyphenoxy]ethyl ester (9CI) (CA INDEX NAME)



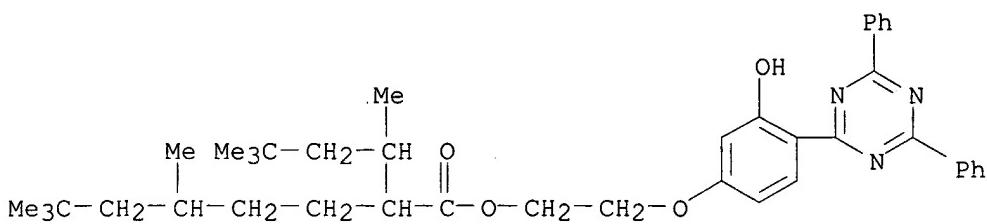
RN 470709-87-6 HCA

CN Decanoic acid, 2-hexyl-, 2-[4-(4,6-diphenyl-1,3,5-triazin-2-yl)-3-hydroxyphenoxy]ethyl ester (9CI) (CA INDEX NAME)

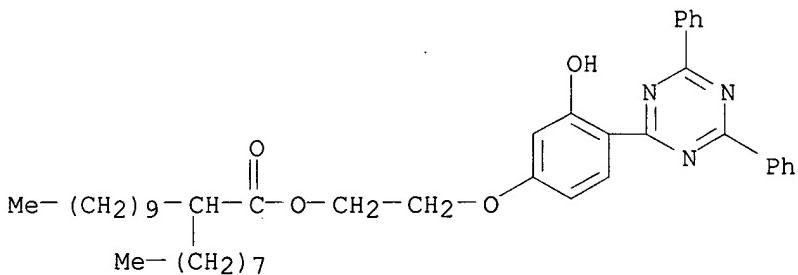


RN 470709-88-7 HCA

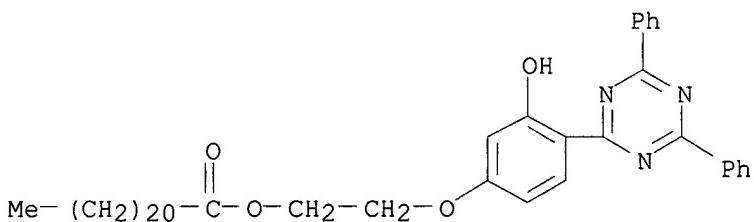
CN Octanoic acid, 5,7,7-trimethyl-2-(1,3,3-trimethylbutyl)-,
2-[4-(4,6-diphenyl-1,3,5-triazin-2-yl)-3-hydroxyphenoxy]ethyl ester (9CI)
(CA INDEX NAME)



RN 470709-89-8 HCA
 CN Dodecanoic acid, 2-octyl-, 2-[4-(4,6-diphenyl-1,3,5-triazin-2-yl)-3-hydroxyphenoxy]ethyl ester (9CI) (CA INDEX NAME)

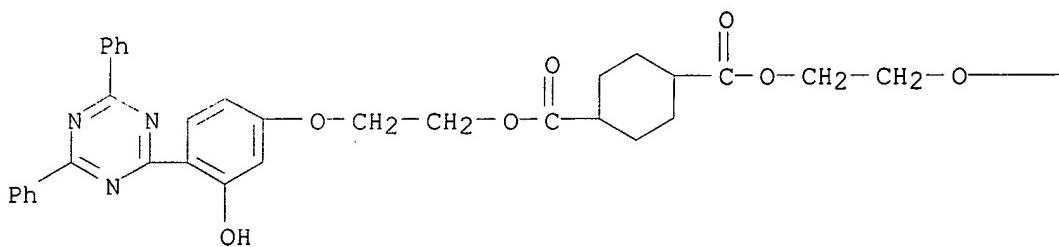


RN 470709-90-1 HCA
 CN Docosanoic acid, 2-[4-(4,6-diphenyl-1,3,5-triazin-2-yl)-3-hydroxyphenoxy]ethyl ester (9CI) (CA INDEX NAME)

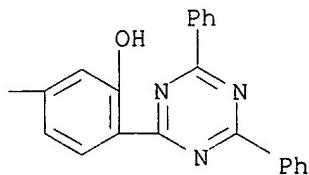


RN 470709-91-2 HCA
 CN 1,4-Cyclohexanedicarboxylic acid, bis[2-[4-(4,6-diphenyl-1,3,5-triazin-2-yl)-3-hydroxyphenoxy]ethyl] ester (9CI) (CA INDEX NAME)

PAGE 1-A

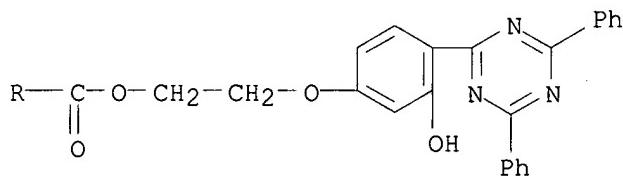
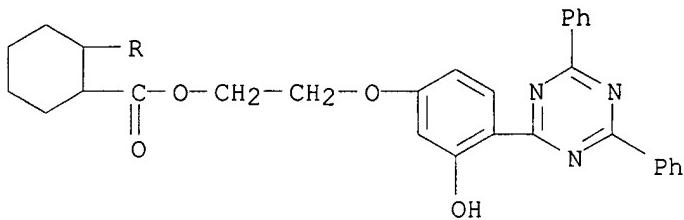


PAGE 1-B



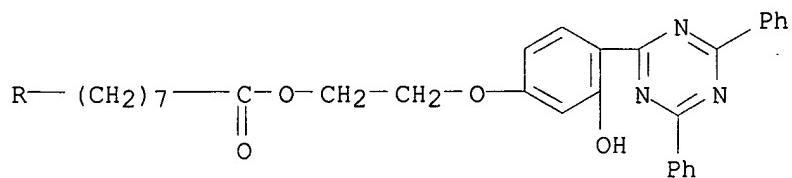
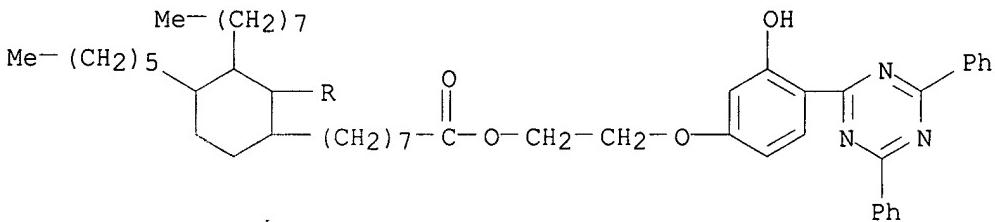
RN 470709-92-3 HCA

CN 1,2-Cyclohexanedicarboxylic acid, bis[2-[4-(4,6-diphenyl-1,3,5-triazin-2-yl)-3-hydroxyphenoxy]ethyl] ester (9CI) (CA INDEX NAME)



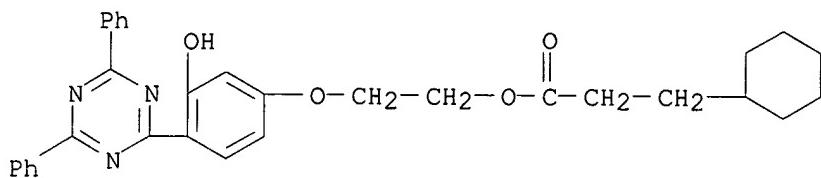
RN 470709-93-4 HCA

CN 1,2-Cyclohexanedioctanoic acid, 4-hexyl-3-octyl-, bis[2-[4-(4,6-diphenyl-1,3,5-triazin-2-yl)-3-hydroxyphenoxy]ethyl] ester (9CI) (CA INDEX NAME)



RN 470709-94-5 HCA

CN Cyclohexanepropanoic acid, 2-[4-(4,6-diphenyl-1,3,5-triazin-2-yl)-3-hydroxyphenoxy]ethyl ester (9CI) (CA INDEX NAME)



IT 115055-30-6, ADK Stab LA 63

RL: MOA (Modifier or additive use); USES (Uses)
 (prepn. of triazine-based UV absorber for resin compn. with
 good decoloration resistance)

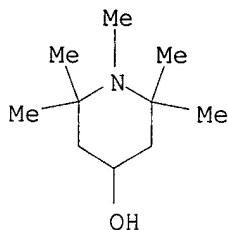
RN 115055-30-6 HCA

CN 1,2,3,4-Butanetetracarboxylic acid, polymer with
 .beta.,.beta.,.beta.,.beta.-tetramethyl-2,4,8,10-
 tetraoxaspiro[5.5]undecane-3,9-diethanol, 1,2,2,6,6-pentamethyl-4-
 piperidinyl ester (9CI) (CA INDEX NAME)

CM 1

CRN 2403-89-6

CMF C10 H21 N O



CM 2

CRN 182760-78-7

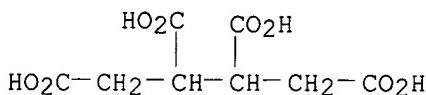
CMF (C15 H28 O6 . C8 H10 O8)x

CCI PMS

CM 3

CRN 1703-58-8

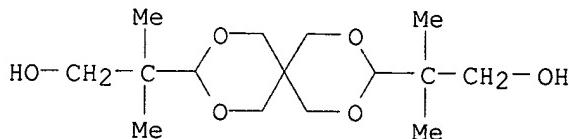
CMF C8 H10 O8



CM 4

CRN 1455-42-1

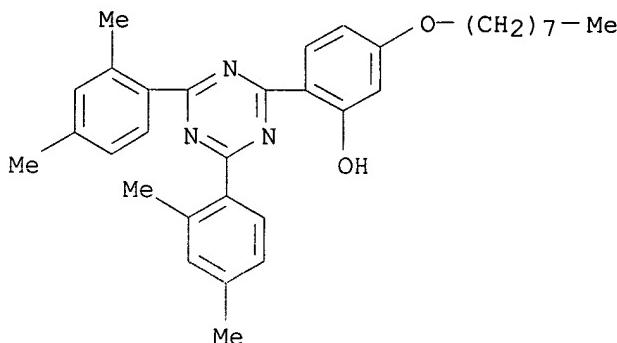
CMF C15 H28 O6



L59 ANSWER (2) OF 12 HCA COPYRIGHT 2003 ACS

136:218045 Light stable articles of single or multilayer **polyester** film. Johnson, Stephen A.; McGurran, Daniel J.; Bailey, Terry R.; Frank, John W. (3m Innovative Properties Co., USA). U.S. Pat. Appl. Publ. US 20020028862 A1 20020307, 9 pp., Cont.-in-part of U. S. Ser. No. 548,155, abandoned. (English). CODEN: USXXCO. APPLICATION: US 2001-893200 20010627. PRIORITY: US 2000-548155 20000413.

- AB The light stable article contains .gtoreq.1 single or multiple layer **polyester** film and a light absorbing **compn.** comprising .gtoreq.1 of an UV light absorbing compd., a **hindered amine light stabilizer (HALS) compn** ., and a phosphonate stabilizing compd. The wt. ratio of the light absorbing compd. to the **HALS compn.** .gtorsim.2:1.
- IC C08K005-34
- NCL 524100000
- CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 42
- ST light stable **polyester** film article; UV absorber **hindered amine stabilizer polyester** film article; triethyl phosphonoacetate stabilizer light resistance **polyester** film article
- IT **Polyesters**, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(films; light stable articles contg. polymer films for outdoor exposure applications)
- IT **Amines**, uses
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(**hindered, light stabilizers; light**
stable articles contg. polymer films for outdoor exposure applications)
- IT 2725-22-6, Cyasorb 1164 18600-59-4, Cyasorb UV 3638
70198-29-7, Tinuvin 622 73936-91-1, Tinuvin 928 103597-45-1,
Tinuvin 360 147315-50-2, Tinuvin 1577
RL: MOA (Modifier or additive use); USES (Uses)
(UV absorbent; light stable articles contg. polymer films for outdoor exposure applications)
- IT 25038-59-9, PET **polyester**, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(films; light stable articles contg. polymer films for outdoor exposure applications)
- IT 2725-22-6, Cyasorb 1164 70198-29-7, Tinuvin 622
147315-50-2, Tinuvin 1577
RL: MOA (Modifier or additive use); USES (Uses)
(UV absorbent; light stable articles contg. polymer films for outdoor exposure applications)
- RN 2725-22-6 HCA
- CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)-(9CI) (CA INDEX NAME)

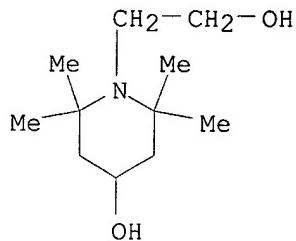


RN 70198-29-7 HCA

CN Butanedioic acid, polymer with 4-hydroxy-2,2,6,6-tetramethyl-1-piperidineethanol (9CI) (CA INDEX NAME)

CM 1

CRN 52722-86-8
CMF C11 H23 N 0



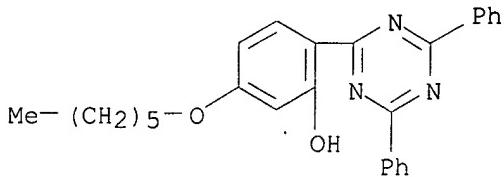
CM 2

CRN 110-15-6
CMF C4 H6 O4

$$\text{HO}_2\text{C}-\text{CH}_2-\text{CH}_2-\text{CO}_2\text{H}$$

RN 147315-50-2 HCA

CN Phenol, 2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-(hexyloxy)- (9CI) (CA INDEX NAME)



L59 ANSWER 3 OF 12 HCA COPYRIGHT 2003 ACS

136:86438 New generation of long-term stabilizers for polyolefins. Cangelosi, Frank; Davis, Leonard; Samuels, Sari-Beth (Cytec Industries, Inc., Stamford, CT, 06904-0060, USA). Journal of Vinyl & Additive Technology,

- 7(3), 123-133 (English) 2001. CODEN: JVATF4. ISSN: 1083-5601.
Publisher: Society of Plastics Engineers.
- AB The benefits of light stabilizers, Cyasorb UV-4611 and Cyasorb UV-6435, for polyethylenes (HDPE and LLDPE and LLDPE hexene copolymer), polypropylene (PP), and other resins are outlined. Tensile test data demonstrate that when used with a base sensitive antioxidant package, UV-4611 will exhibit superior discoloration resistance to either UV-3346 or UV-944 in LLDPE. For HDPE samples, after 8000 h of exposure, the sample contg. UV-4611 still retained 74% of its initial elongation; while the sample contg. UV-783 failed after 3120 h. The PP formulation contg. UV-6435 exhibited significantly higher tensile strength retention than the formulation contg. UV-3346; after actual Florida exposure for four years, samples contg. UV-6435 outperformed samples contg. WV-3346, UV-944 and UV-783. Color and gloss measurements of all samples also demonstrate superior performance of the light stabilizers.
- CC 37-2 (Plastics Manufacture and Processing)
- ST hindered amine mixt triazine UV stabilizer polyolefin; antioxidant combination UV stabilizer polyolefin tensile testing
- IT Amines, uses
RL: MOA (Modifier or additive use); USES (Uses)
(hindered; long-term UV stabilizers based on mixts.
of hindered amines and triazines for polyolefins)
- IT Antioxidants
Elongation, mechanical
Luster
Tensile strength
UV stabilizers
(long-term UV stabilizers based on mixts. of hindered
amines and triazines for polyolefins)
- IT Linear low density polyethylenes
RL: PRP (Properties)
(long-term UV stabilizers based on mixts. of hindered
amines and triazines for polyolefins)
- IT 6683-19-8, Cyanox 2110
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(Cyanox 2110, mixts. with UV-1164, stabilizer; long-term UV
stabilizers based on mixts. of hindered
amines and triazines for polyolefins)
- IT 31570-04-4, Tris(2,4-di-tert-butylphenyl) phosphite
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(Cyanox 2704, mixts. with UV-1164, stabilizer; long-term UV
stabilizers based on mixts. of hindered
amines and triazines for polyolefins)
- IT 387337-51-1, Cyasorb UV 4611 387337-52-2, Cyasorb UV
6435
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(UV stabilizer; long-term UV stabilizers based on mixts. of
hindered amines and triazines for polyolefins)
- IT 40601-76-1, Tris(4-tert-butyl-2,6-dimethyl-3-hydroxybenzyl) isocyanurate
220246-19-5, Cyanox 2777
RL: MOA (Modifier or additive use); USES (Uses)
(antioxidant; long-term UV stabilizers based on mixts. of
hindered amines and triazines for polyolefins)
- IT 88117-78-6, Ethene-hexene copolymer
RL: PRP (Properties)
(linear low-d. and high-d.; long-term UV stabilizers based on
mixts. of hindered amines and triazines for
polyolefins)
- IT 70198-29-7, Tinuvin 622 71878-19-8, Chimassorb 944

195300-91-5, Chimassorb 2020 205132-52-1, Tinuvin 783
 RL: MOA (Modifier or additive use); USES (Uses)
 (long-term UV stabilizers based on **mixts.** of **hindered amines** and triazines for polyolefins)

IT 557-05-1, Zinc stearate
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (long-term UV stabilizers based on **mixts.** of **hindered amines** and triazines for polyolefins)

IT 9003-07-0, Polypropylene
 RL: PRP (Properties)
 (long-term UV stabilizers based on **mixts.** of **hindered amines** and triazines for polyolefins)

IT 90751-07-8, Cyasorb UV-3346
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (**mixts.** with UV-1164 and UV-3529, stabilizer; long-term UV stabilizers based on **mixts.** of **hindered amines** and triazines for polyolefins)

IT 145849-89-4, Cyasorb UV-3529
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (**mixts.** with UV-1164, stabilizer; long-term UV stabilizers based on **mixts.** of **hindered amines** and triazines for polyolefins)

IT 2725-22-6, Cyasorb UV 1164
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (**mixts.** with UV-3346, stabilizer; long-term UV stabilizers based on **mixts.** of **hindered amines** and triazines for polyolefins)

IT 387337-51-1, Cyasorb UV 4611 387337-52-2, Cyasorb UV 6435
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (UV stabilizer; long-term UV stabilizers based on **mixts.** of **hindered amines** and triazines for polyolefins)

RN 387337-51-1 HCA

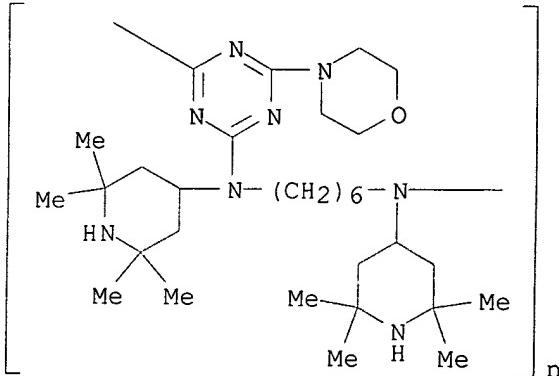
CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)-, mixt. with poly[[6-(4-morpholinyl)-1,3,5-triazine-2,4-diyl][(2,2,6,6-tetramethyl-4-piperidinyl)imino]-1,6-hexanediyyl[(2,2,6,6-tetramethyl-4-piperidinyl)imino]] (9CI) (CA INDEX NAME)

CM 1

CRN 90751-07-8

CMF (C₃₁ H₅₆ N₈ O)n

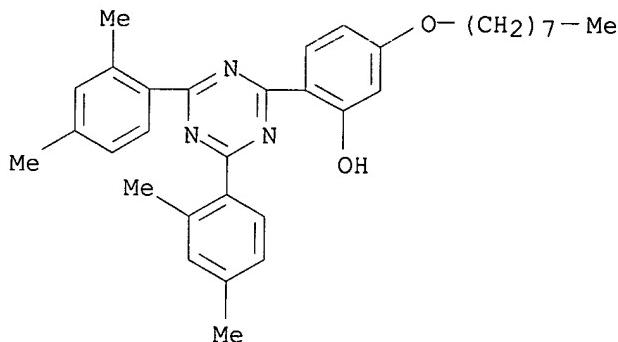
CCI PMS



CM 2

CRN 2725-22-6

CMF C33 H39 N3 O2



RN 387337-52-2 HCA

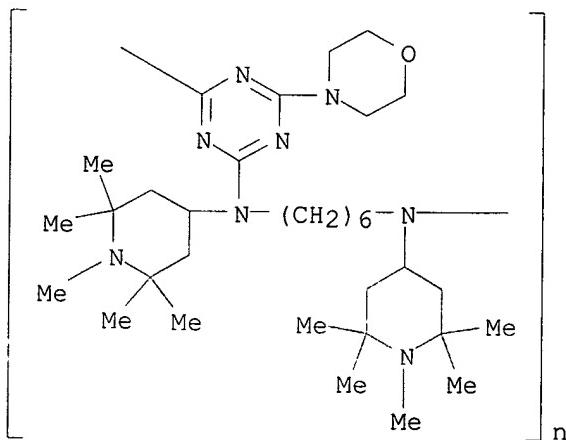
CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)-,
mixt. with poly[[6-(4-morpholinyl)-1,3,5-triazine-2,4-diyl][(1,2,2,6,6-
pentamethyl-4-piperidinyl)imino]-1,6-hexanediyl[(1,2,2,6,6-pentamethyl-4-
piperidinyl)imino]] (9CI) (CA INDEX NAME)

CM 1

CRN 145849-89-4

CMF (C₃₃ H₆₀ N₈ O)_n

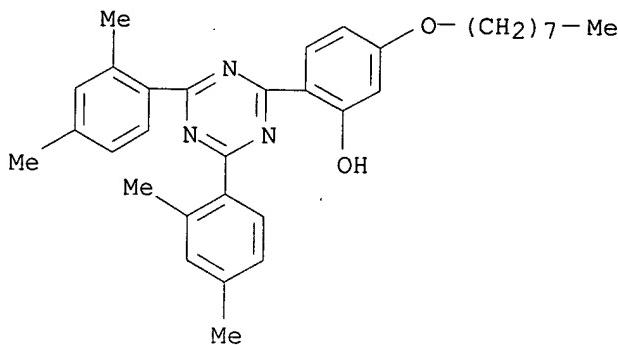
CCI PMS



CM 2

CRN 2725-22-6

CMF C33 H39 N3 O2



IT 70198-29-7, Tinuvin 622

RL: MOA (Modifier or additive use); USES (Uses)
 (long-term UV stabilizers based on **mixts.** of **hindered amines** and triazines for polyolefins)

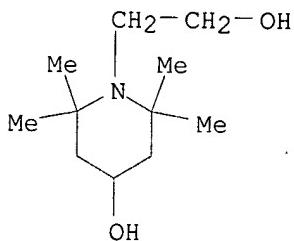
RN 70198-29-7 HCA

CN Butanedioic acid, polymer with 4-hydroxy-2,2,6,6-tetramethyl-1-piperideneethanol (9CI) (CA INDEX NAME)

CM 1

CRN 52722-86-8

CMF C11 H23 N O2



CM 2

CRN 110-15-6

CMF C4 H6 O4

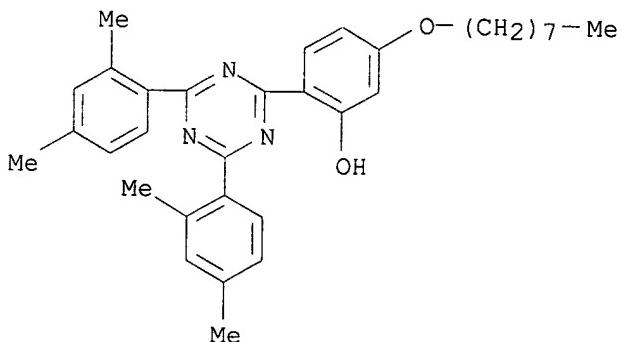
HO₂C-CH₂-CH₂-CO₂H

IT 2725-22-6, Cyasorb UV 1164

RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (**mixts.** with UV-3346, stabilizer; long-term UV stabilizers
 based on **mixts.** of **hindered amines** and
 triazines for polyolefins)

RN 2725-22-6 HCA

CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)-(9CI) (CA INDEX NAME)



L59 ANSWER 4 OF 12 HCA COPYRIGHT 2003 ACS

135:332273 Light stable articles containing polymer films for outdoor exposure applications. Johnson, Stephen A.; McGurran, Dan J.; Bailey, Terry R. (3M Innovative Properties Company, USA). PCT Int. Appl. WO 2001079340 A1 20011025, 21 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 2000-US21314 20000804. PRIORITY: US 2000-548155 20000413.

AB The invention provides, generally, light stable article contg. at least one single or multiple layer **polyester** film and an effective amt. of a light absorbing compn. comprising one or more of an UV light absorbing compd., a **hindered amine** light stabilizer (**HALS**) compn., and a phosphonate stabilizing compd. (tri-Et phosphonoacetate). Generally, the wt. ratio of the light absorbing compd. to the **HALS** compn. is greater than about 2:1. Various **composite** articles and constructions made utilizing the above light stable articles are also provided.

IC ICM C08K005-3492
ICS C08K005-3435; C08K005-5333; C08L067-02; B32B027-36; G02B005-00; G02F001-00

CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 42

ST TEPA light stable **polyester** film article; UV absorber hindered amine stabilizer **polyester** film article; triethyl phosphonoacetate stabilizer light resistance **polyester** film article

IT **Polyesters**, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(films; light stable articles contg. polymer films for outdoor exposure applications)

IT **Amines**, uses
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(**hindered**, **light** stabilizers; **light** stable articles contg. polymer films for outdoor exposure applications)
IT 2725-22-6, Cyasorb 1164 18600-59-4, Cyasorb UV 3638
70198-29-7, Tinuvin 622 73936-91-1, Tinuvin 928 103597-45-1,
Tinuvin 360

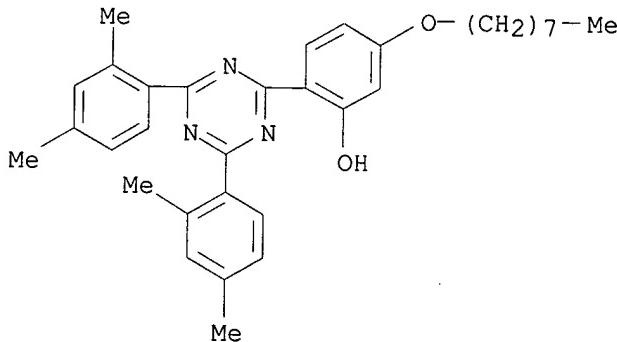
RL: MOA (Modifier or additive use); USES (Uses)
 (UV absorbent; light stable articles contg. polymer films for outdoor
 exposure applications)

IT 25038-59-9, PET **polyester**, uses
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
 engineered material use); USES (Uses)
 (films; light stable articles contg. polymer films for outdoor exposure
 applications)

IT 2725-22-6, Cyasorb 1164 70198-29-7, Tinuvin 622
 RL: MOA (Modifier or additive use); USES (Uses)
 (UV absorbent; light stable articles contg. polymer films for outdoor
 exposure applications)

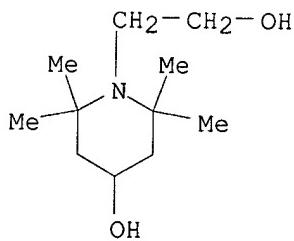
RN 2725-22-6 HCA

CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)-
 (9CI) (CA INDEX NAME)



RN 70198-29-7 HCA
 CN Butanedioic acid, polymer with 4-hydroxy-2,2,6,6-tetramethyl-1-piperidineethanol (9CI) (CA INDEX NAME)

CM 1

CRN 52722-86-8
CMF C11 H23 N O2

CM 2

CRN 110-15-6
CMF C4 H6 O4 $\text{HO}_2\text{C}-\text{CH}_2-\text{CH}_2-\text{CO}_2\text{H}$

L59 ANSWER 5 OF 12 HCA COPYRIGHT 2003 ACS

134:86667 Polymer-bonded functional agents. Nakamura, Michiei; Yanagimoto, Hiromitsu; Shimanaka, Hiroyuki; Yamashita, Rokuya (Dainichiseika Color and Chemicals Mfg. Co. Ltd., Japan). Eur. Pat. Appl. EP 1067144 A1 20010110, 24 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2000-114323 20000704. PRIORITY: JP 1999-193039 19990707.

AB Polymer-bonded functional agents are each obtained by reacting a functional agent contg. reactive groups with a polymer contg. groups reactive with the reactive groups of the functional agent. The functional agent comprises at least one functional agent selected from the group consisting of antioxidants, UV absorbers, light stabilizers, IR absorbers and antistatic agents. Use of these polymer-bonded functional agents can provide articles with improved functions.

IC ICM C08F008-00

ICS C08G085-00; A61K007-42

CC 35-8 (Chemistry of Synthetic High Polymers)

IT 100-37-8DP, Diethylamino-ethanol, reaction products with polymers 1421-49-4DP, 3,5-Di-tert-butyl-4-hydroxybenzoic acid, reaction products with polymers 2403-88-5DP, 4-Hydroxy-2,2,6,6-tetramethylpiperidine, reaction products with polymers 2403-89-6DP, 4-Hydroxy-1,2,2,6,6-pentamethylpiperidine, reaction products with polymers 9010-77-9DP, Ethylene-acrylic acid copolymer, reaction products with functional agents 14234-65-2DP, 3-[3'-(2''H-Benzotriazol-2''-yl)-4'-hydroxyphenyl]propionic acid, reaction products with polymers 20170-32-5DP, 3-(3',5'-Di-tert-butyl-4'-hydroxyphenyl)propionic acid, reaction products with polymers 24794-55-6DP, 3-(3'-tert-Butyl-5'-methyl-4'-hydroxyphenyl)propionic acid, reaction products with polymers 25067-34-9DP, Ethylene-vinyl alcohol copolymer, reaction products with functional agents 85255-59-0P, Ethylene-acrylic acid copolymer ester with 4-hydroxy-1,2,2,6,6-pentamethylpiperidine 131807-04-0DP, 1-Octyloxy-4-hydroxy-2,2,6,6-tetramethylpiperidine, reaction products with polymers 316829-12-6DP, reaction products with polymers 317802-85-0P, Ethylene-vinyl alcohol copolymer ester with 3-(3',5'-di-tert-butyl-4'-hydroxyphenyl)propionic acid 317802-86-1DP, Ethylene-vinyl alcohol copolymer ester with 3-(3'-tert-butyl-5'-methyl-4'-hydroxyphenyl)propionic acid, reaction products with functional agents 317802-87-2DP, Ethylene-vinyl alcohol copolymer ester with 3,5-di-5-Butyl-4-hydroxybenzoic acid, reaction products with functional agents 317802-88-3P, Ethylene-vinyl alcohol copolymer ester with 3-[3'-(2''H-benzotriazol-2''-yl)-4'-hydroxyphenyl]propionic acid 317802-90-7P, Ethylene-vinyl alcohol copolymer ester with 2-[4''-[(2'''-chlorocarbonyl-propionyloxy)-3'''-dodecyloxypropoxy]-2''-hydroxyphenyl]-4,6-bis(2',4'-dimethylphenyl)-1,3,5-triazine and 3-[3'-(2''H-benzotriazol-2''-yl)-4'-hydroxyphenyl]propionic acid 317802-91-8P, Ethylene-acrylic acid copolymer ester with 4-Hydroxy-2,2,6,6-tetramethylpiperidine 317802-92-9P, Ethylene-acrylic acid copolymer ester with 1-Octyloxy-4-hydroxy-2,2,6,6-tetramethylpiperidine 317802-93-0P, Ethylene-acrylic acid copolymer ester with diethylaminoethanol

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polymer-bonded functional agents)

IT 85255-59-0P, Ethylene-acrylic acid copolymer ester with 4-hydroxy-1,2,2,6,6-pentamethylpiperidine 316829-12-6DP, reaction products with polymers 317802-90-7P, Ethylene-vinyl alcohol copolymer ester with 2-[4''-[(2'''-chlorocarbonyl-propionyloxy)-3'''-dodecyloxypropoxy]-2''-hydroxyphenyl]-4,6-bis(2',4'-dimethylphenyl)-1,3,5-triazine and 3-[3'-(2''H-benzotriazol-2''-yl)-4'-hydroxyphenyl]propionic acid 317802-91-8P, Ethylene-acrylic acid copolymer ester with 4-Hydroxy-2,2,6,6-tetramethylpiperidine

317802-92-9P, Ethylene-acrylic acid copolymer ester with
1-Octyloxy-4-hydroxy-2,2,6,6-tetramethylpiperidine
RL: IMF (Industrial manufacture); TEM (Technical or engineered material
use); PREP (Preparation); USES (Uses)
(polymer-bonded functional agents)

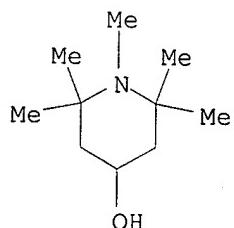
RN 85255-59-0 HCA

CN 2-Propenoic acid, polymer with ethene, 1,2,2,6,6-pentamethyl-4-piperidinyl
ester (9CI) (CA INDEX NAME)

CM 1

CRN 2403-89-6

CMF C10 H21 N O



CM 2

CRN 9010-77-9

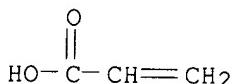
CMF (C3 H4 O2 . C2 H4)x

CCI PMS

CM 3

CRN 79-10-7

CMF C3 H4 O2



CM 4

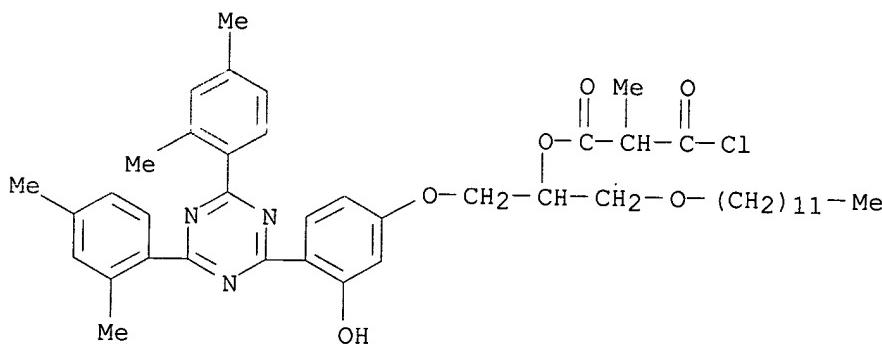
CRN 74-85-1

CMF C2 H4



RN 316829-12-6 HCA

CN Propanoic acid, 3-chloro-2-methyl-3-oxo-, 2-[4-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-3-hydroxyphenoxy]-1-[(dodecyloxy)methyl]ethyl ester (9CI) (CA INDEX NAME)



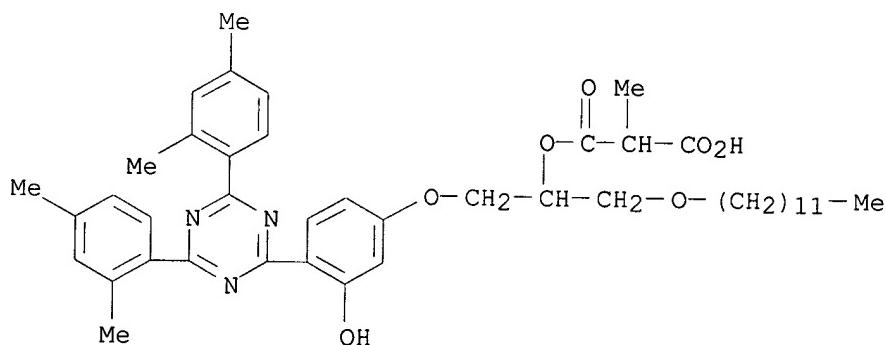
RN 317802-90-7 HCA

CN Ethenol, polymer with ethene, 3-(2H-benzotriazol-2-yl)-4-hydroxybenzenepropanoate 2-[4-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-3-hydroxyphenoxy]-1-[(dodecyloxy)methyl]ethyl methylpropanedioate (9CI) (CA INDEX NAME)

CM 1

CRN 317802-89-4

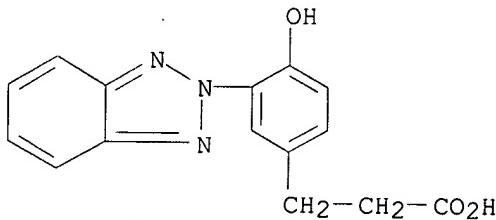
CMF C44 H57 N3 07



CM 2

CRN 14234-65-2

CMF C15 H13 N3 O3



CM 3

CRN 25067-34-9

M. Bissett

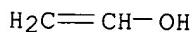
09/682,749

01/23/2003

CMF (C₂ H₄ O . C₂ H₄)_x
CCI PMS

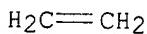
CM 4

CRN 557-75-5
CMF C₂ H₄ O



CM 5

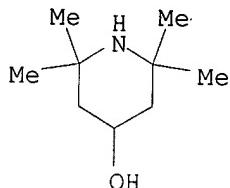
CRN 74-85-1
CMF C₂ H₄



RN 317802-91-8 HCA
CN 2-Propenoic acid, polymer with ethene, 2,2,6,6-tetramethyl-4-piperidinyl ester (9CI) (CA INDEX NAME)

CM 1

CRN 2403-88-5
CMF C₉ H₁₉ N O

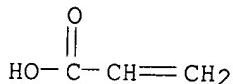


CM 2

CRN 9010-77-9
CMF (C₃ H₄ O₂ . C₂ H₄)_x
CCI PMS

CM 3

CRN 79-10-7
CMF C₃ H₄ O₂



CM 4

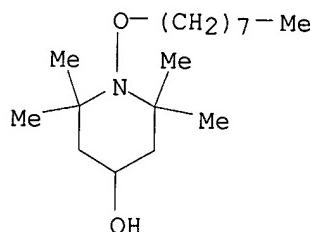
CRN 74-85-1
CMF C₂ H₄

$\text{H}_2\text{C}=\text{CH}_2$

RN 317802-92-9 HCA
 CN 2-Propenoic acid, polymer with ethene, 2,2,6,6-tetramethyl-1-(octyloxy)-4-piperidinyl ester (9CI) (CA INDEX NAME)

CM 1

CRN 131807-04-0
 CMF C17 H35 N O2

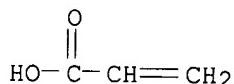


CM 2

CRN 9010-77-9
 CMF (C3 H4 O2 . C2 H4)x
 CCI PMS

CM 3

CRN 79-10-7
 CMF C3 H4 O2



CM 4

CRN 74-85-1
 CMF C2 H4

$\text{H}_2\text{C}=\text{CH}_2$

L59 ANSWER 6 OF 12 HCA COPYRIGHT 2003 ACS
 133:322954 Light-resistant polyamide fishing lines and their manufacture.
 Hashimoto, Satoru; Ochiai, Hiroshi; Mizuno, Takeya (Kureha Chemical
 Industry Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000300131 A2
 20001031, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-107239
 19990414.

AB The fishing lines contain 100 parts polyamides, 0.05-1 part UV absorbers,
 0.05-1 part light stabilizers, and colorants. Thus, a 35:1:0.5:0.5
 mixt. of Novamid 2030A (nylon 6/66), PAM(F) 11252 Light Blue
 (pigment masterbatch), ADK Stab LA 31 (benzotriazole-type UV absorber),

and ADK Stab LA 57 (**hindered amine-type light stabilizer**) was spun into fishing lines showing tenacity 93.9 and 85.0 kg/mm², before and after light irradn. at intensity 83 mW/cm² for 24 h, resp.

IC ICM A01K091-00
ICS C08K005-01; C08K005-07; C08K005-23; C08K005-315; C08K005-34;
C08L077-00

CC 40-2 (Textiles and Fibers)

ST Section cross-reference(s): 37

IT light resistance polyamide fiber fishing line; nylon **hindered amine light stabilizer**

IT **Amines**, uses

RL: MOA (Modifier or additive use); USES (Uses)
(**hindered, light stabilizer; light-resistant polyamide fishing lines**)

IT 3846-71-7, Tinuvin 320 103597-45-1, ADK Stab LA 31 **147315-50-2**,
, Tinuvin 1577FF

RL: MOA (Modifier or additive use); USES (Uses)
(UV absorber; light-resistant polyamide fishing lines)

IT 64022-61-3, ADK Stab LA 57 71878-19-8, Chimassorb 944LD
115055-30-6, ADK Stab LA 63

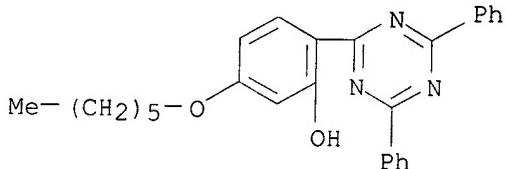
RL: MOA (Modifier or additive use); USES (Uses)
(light stabilizer; light-resistant polyamide fishing lines)

IT **147315-50-2**, Tinuvin 1577FF

RL: MOA (Modifier or additive use); USES (Uses)
(UV absorber; light-resistant polyamide fishing lines)

RN 147315-50-2 HCA

CN Phenol, 2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-(hexyloxy)- (9CI) (CA INDEX NAME)



IT **115055-30-6**, ADK Stab LA 63

RL: MOA (Modifier or additive use); USES (Uses)
(light stabilizer; light-resistant polyamide fishing lines)

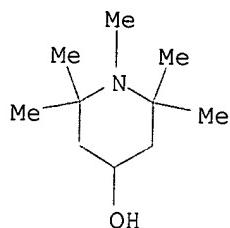
RN 115055-30-6 HCA

CN 1,2,3,4-Butanetetracarboxylic acid, polymer with
.beta.,.beta.,.beta.',.beta.'-tetramethyl-2,4,8,10-
tetraoxaspiro[5.5]undecane-3,9-diethanol, 1,2,2,6,6-pentamethyl-4-piperidinyl ester (9CI) (CA INDEX NAME)

CM 1

CRN 2403-89-6

CMF C10 H21 N O

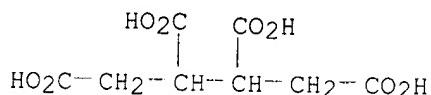


CM 2

CRN 182760-78-7
 CMF (C₁₅ H₂₈ O₆ . C₈ H₁₀ O₈)_x
 CCI PMS

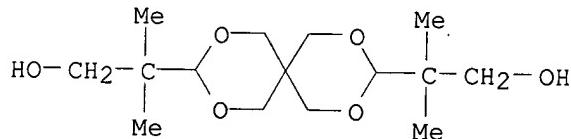
CM 3

CRN 1703-58-8
 CMF C₈ H₁₀ O₈



CM 4

CRN 1455-42-1
 CMF C₁₅ H₂₈ O₆



L59 ANSWER 7 OF 12 HCA COPYRIGHT 2003 ACS

132:153229 Yellowing-resistant polyurethane elastic yarns. Shirasu, Koji; Fijie, Tsutomu; Kitamura, Kota (Toyobo Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000054226 A2 20000222, 10 pp. (Japanese). CODEN: JKXXAF.
 APPLICATION: JP 1998-215169 19980730.

AB Polyurethanes contain **hindered amines**, hydrazides, and UV absorbers. Thus, fibers contained diphenylmethane diisocyanate-ethylenediamine-poly(tetramethylene glycol) copolymer, 2% 1,2,3,4-butanetetracarboxylic acid-2,2,6,6-tetramethyl-4-piperidinol-beta..beta..beta.'-tetramethyl-3,9-(2,4,8,10-tetraoxaspiro[5.5]undecane)diethanol condensate, 1% N,N'-bis[3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionyl]hydrazine, and 0.5% 2-[2-hydroxy-3,5-bis(.alpha.,.alpha.-dimethylbenzyl)phenyl]-2H-benzotriazole.

IC ICM D01F006-94

ICS C08K005-00; C08L075-04; D01F001-10; C08K005-3435; C08K005-25

CC 40-2 (Textiles and Fibers)

ST yellowing resistance polyurethane elastic fiber; **hindered**

amine yellowing resistance polyurethane fiber; UV absorber
yellowing resistance polyurethane fiber; hydrazide yellowing resistance
polyurethane fiber; nitrogen oxide yellowing resistance fiber
IT Spandex fibers
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP
(Properties); TEM (Technical or engineered material use); PREP
(Preparation); USES (Uses)
(diphenylmethane diisocyanate-ethylenediamine-poly(tetramethylene
glycol); yellowing-resistant polyurethane elastic yarns contg.
hindered amines and hydrazides and UV absorbers)

IT Elastic materials
(fibers; yellowing-resistant polyurethane elastic yarns contg.
hindered amines and hydrazides and UV absorbers)

IT Amines, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**hindered**; yellowing-resistant polyurethane elastic yarns
contg. **hindered amines** and hydrazides and UV
absorbers)

IT Light-resistant materials
UV stabilizers
Yarns
Yellowing
(yellowing-resistant polyurethane elastic yarns contg. **hindered**
amines and hydrazides and UV absorbers)

IT Hydrazides
RL: MOA (Modifier or additive use); USES (Uses)
(yellowing-resistant polyurethane elastic yarns contg. **hindered**
amines and hydrazides and UV absorbers)

IT 7782-50-5, Chlorine, miscellaneous
RL: MSC (Miscellaneous)
(chlorine-yellowing-resistant polyurethane elastic yarns contg.
hindered amines and hydrazides and UV absorbers)

IT 11104-93-1, Nitrogen oxide, miscellaneous
RL: MSC (Miscellaneous)
(nitrogen oxide-yellowing-resistant polyurethane elastic yarns contg.
hindered amines and hydrazides and UV absorbers)

IT 1455-42-1DP, .beta.,.beta.,.beta.'-Tetramethyl-3,9-(2,4,8,10-
tetraoxaspiro[5.5]undecane)diethanol, reaction products with
butanetetracarboxylic acid and pentamethylpiperidinol 1675-54-3DP,
Bisphenol A diglycidyl ether, reaction products with lauric acid hydrazide
1703-58-8DP, 1,2,3,4-Butanetetracarboxylic acid, reaction products with
pentamethylpiperidinol and tetramethyl(tetraoxaspiroundecane)diethanol
2403-89-6DP, 1,2,2,6,6-Pentamethyl-4-piperidinol, reaction products with
butanetetracarboxylic acid and tetramethyl(tetraoxaspiroundecane)diethanol
5399-22-4DP, Lauric acid hydrazide, reaction products with bisphenol A
diglycidyl ether
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP
(Preparation); USES (Uses)
(yellowing-resistant polyurethane elastic yarns contg. **hindered**
amines and hydrazides and UV absorbers)

IT 9053-66-1P, Diphenylmethane diisocyanate-ethylenediamine-
poly(tetramethylene glycol) copolymer
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP
(Properties); TEM (Technical or engineered material use); PREP
(Preparation); USES (Uses)
(yellowing-resistant polyurethane elastic yarns contg. **hindered**
amines and hydrazides and UV absorbers)

IT 32687-78-8, N,N'-Bis[3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionyl]hydrazine
70321-86-7, 2-[2-Hydroxy-3,5-bis(.alpha.,.alpha.-
dimethylbenzyl)phenyl]-2H-benzotriazole **119524-47-9**,

1,2,3,4-Butanetetracarboxylic acid-2,2,6,6-tetramethyl-4-piperidinol-.beta.,.beta.,.beta.'-tetramethyl-3,9-(2,4,8,10-tetraoxaspiro[5.5]undecane)diethanol copolymer 147315-50-2,
 2-(4,6-Diphenyl-1,3,5-triazine-2-yl)-5-[(hexyl)oxy]phenol
 RL: MOA (Modifier or additive use); USES (Uses)
 (yellowing-resistant polyurethane elastic yarns contg. **hindered amines** and hydrazides and UV absorbers)

IT 119524-47-9, 1,2,3,4-Butanetetracarboxylic acid-2,2,6,6-tetramethyl-4-piperidinol-.beta.,.beta.,.beta.'-tetramethyl-3,9-(2,4,8,10-tetraoxaspiro[5.5]undecane)diethanol copolymer
 147315-50-2, 2-(4,6-Diphenyl-1,3,5-triazine-2-yl)-5-[(hexyl)oxy]phenol

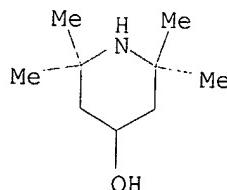
RL: MOA (Modifier or additive use); USES (Uses)
 (yellowing-resistant polyurethane elastic yarns contg. **hindered amines** and hydrazides and UV absorbers)

RN 119524-47-9 HCA

CN 1,2,3,4-Butanetetracarboxylic acid, polymer with 2,2,6,6-tetramethyl-4-piperidinol and .beta.,.beta.,.beta.'-tetramethyl-2,4,8,10-tetraoxaspiro[5.5]undecane-3,9-diethanol (9CI) (CA INDEX NAME)

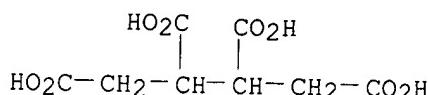
CM 1

CRN 2403-88-5
 CMF C9 H19 N O



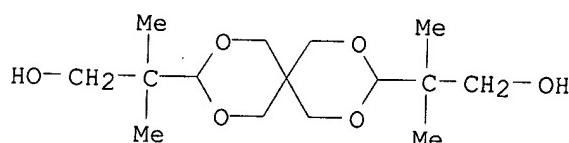
CM 2

CRN 1703-58-8
 CMF C8 H10 O8



CM 3

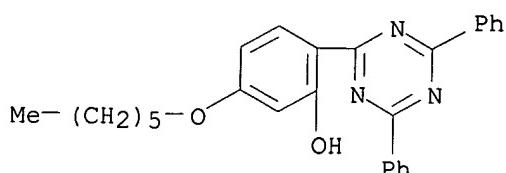
CRN 1455-42-1
 CMF C15 H28 O6



RN 147315-50-2 HCA

CN Phenol, 2-(4,6-diphenyl-1,3,5-triazin-2-yl)-5-(hexyloxy)- (9CI) (CA INDEX

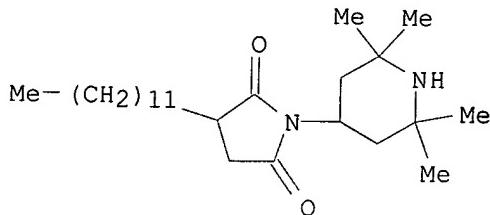
NAME)



L59 ANSWER 8 OF 12 HCA COPYRIGHT 2003 ACS

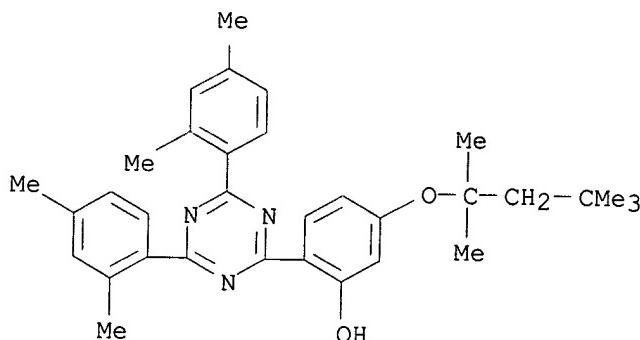
132:124169 Studies on the interaction of photoreactive light stabilizers and UV-absorbers. Avar, L.; Bechtold, K. (Clariant Huningue S.A., Fr.). Proceedings - International Conference in Organic Coatings: Waterborne, High Solids, Powder Coatings, 24th, Athens, July 6-10, 1998, 13-30. Institute of Materials Science: New Paltz, N. Y. (English) 1998. CODEN: 67YQAL.

- AB Coatings, like all org. substances, are submitted to photo aging during their life time. UV light absorbing additives (UVA's) and **hindered amine light stabilizers (HALS)** often are added to improve their performance. These additives can be lost by migration to the surface, where they are exposed to phys. depletion, as well as through photodegrdn. of the mol. itself. Modifying **hindered amine light stabilizers** by introducing a photoreactive site gives the possibility to fix the stabilizing mol. on the polymer matrix. Effects of the presence and the type of UV-absorbers on the photografting reaction are discussed.
- CC 42-5 (Coatings, Inks, and Related Products)
- ST coating interaction photoreactive light stabilizer UV absorber; **hindered amine light stabilizer** coating UV absorber
- IT **Amines**, uses
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(**hindered**; studies on the interaction of photoreactive light stabilizers and UV-absorbers)
- IT 79102-63-9 79720-19-7 147783-69-5 **256236-38-1**
256236-39-2 256236-40-5 256336-12-6, 2C-HS
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(studies on the interaction of photoreactive light stabilizers and UV-absorbers)
- IT **79720-19-7 256236-38-1**
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(studies on the interaction of photoreactive light stabilizers and UV-absorbers)
- RN 79720-19-7 HCA
- CN 2,5-Pyrrolidinedione, 3-dodecyl-1-(2,2,6,6-tetramethyl-4-piperidinyl)-(9CI) (CA INDEX NAME)



RN 256236-38-1 HCA

CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(1,1,3,3-tetramethylbutoxy) - (9CI) (CA INDEX NAME)



L59 ANSWER 9 OF 12 HCA COPYRIGHT 2003 ACS

131:131271 An evaluation of the effect of light stabilizers on the exterior durability of **polyester** powder coatings for the architectural market. Johnson, B. W.; Parducci, U.; Nascovalli, E.; Phillips, A.; Lia, R.; Cunliffe, Z.; Wilkinson, R. (Great Lakes Chemical Italia, Milan, 20141, Italy). *Surface Coatings International*, 82(3), 134-141 (English) 1999. CODEN: SCOIE6. ISSN: 1356-0751. Publisher: Oil and Colour Chemists' Association.

AB The use of light stabilizers in traditional powder coatings cured with either TGIC or Primid can result in systems with greatly improved weathering resistance. This improvement in weatherability does not reach the level of performance given by superdurable **polyesters** however when coupled with their superior mech. properties but these systems could still be of com. interest. The selection of the light stabilizer has also been shown to be an important process with many factors requiring consideration before the final choice. This was illustrated by the choice of the UV absorber (primarily responsible for the improvement in performance). For example, UVA 1 (benzotriazole-based) had relatively poor volatility characteristics coupled with inferior UV absorption characteristics which resulted in no real improvement in weathering. UVA 2 (phenyltriazine-based) on the other hand had better LW absorption and was of low volatility characteristics which led to a great increase in the UV durability of the **polyesters** contg. this product. The drawback with UVA 2 was that it imparted color to the coating, in particular during overbake testing which was large enough to cause potential problems if used com. UVA 3 (also benzotriazole-based) which also had very good UV absorption and good volatility performed much better in terms of over-bake yellowing and also had improved UV durability.

CC 42-5 (Coatings, Inks, and Related Products)

ST **polyester** powder coating UV absorber HALS; light stabilizer **polyester** powder coating; weather resistance

polyester powder coating

IT UV stabilizers

(evaluation of effect of light stabilizers on exterior durability of **polyester** powder coatings for architectural market)

IT Light stabilizers

(**hindered amines**; evaluation of effect of light stabilizers on exterior durability of **polyester** powder coatings for architectural market)

IT **Amines**, uses

RL: MOA (Modifier or additive use); TEM (Technical or engineered material

use); USES (Uses)
 (hindered; evaluation of effect of light stabilizers on exterior durability of **polyester** powder coatings for architectural market)

IT Coating materials
 (powder; evaluation of effect of light stabilizers on exterior durability of **polyester** powder coatings for architectural market)

IT Polymer degradation
 (weathering; evaluation of effect of light stabilizers on exterior durability of **polyester** powder coatings for architectural market)

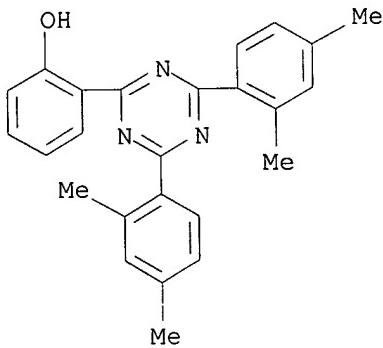
IT 25973-55-1 103734-36-7D, derivs. 213750-09-5
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
 (UV absorber; evaluation of effect of light stabilizers on exterior durability of **polyester** powder coatings for architectural market)

IT 100-21-0D, Terephthalic acid, **polyesters** 233663-23-5
 233663-24-6 233663-25-7
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (evaluation of effect of light stabilizers on exterior durability of **polyester** powder coatings for architectural market)

IT 110-89-4D, Piperidine, derivs., uses 67990-74-3 70198-29-7
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
 (light stabilizer; evaluation of effect of light stabilizers on exterior durability of **polyester** powder coatings for architectural market)

IT 103734-36-7D, derivs.
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
 (UV absorber; evaluation of effect of light stabilizers on exterior durability of **polyester** powder coatings for architectural market)

RN 103734-36-7 HCA
 CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]- (9CI) (CA INDEX NAME)

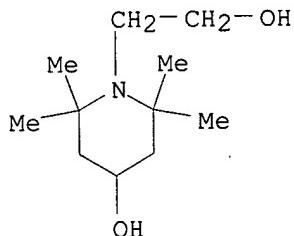


IT 70198-29-7
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
 (light stabilizer; evaluation of effect of light stabilizers on exterior durability of **polyester** powder coatings for architectural market)

RN 70198-29-7 HCA
 CN Butanedioic acid, polymer with 4-hydroxy-2,2,6,6-tetramethyl-1-piperidineethanol (9CI) (CA INDEX NAME)

CM 1

CRN 52722-86-8
 CMF C11 H23 N O2



CM 2

CRN 110-15-6
 CMF C4 H6 O4

HO2C-CH2-CH2-CO2H

L59 ANSWER 10 OF 12 HCA COPYRIGHT 2003 ACS
 130:183208 Balancing the color and physical property retention of polyolefins through the use of high performance stabilizer systems. Paterna, M. J.; Wagner, A. H.; Samuels, S. B. (Research & Development, Cytec Industries, Stamford, CT, 06904-0060, USA). International Conference on Additives for Polyolefins, Houston, Feb. 23-25, 1998, 231-243. Society of Plastics Engineers: Brookfield, Conn. (English) 1998. CODEN: 67BYAW.

AB The use of combinations of antioxidants, **hindered amine** light stabilizers, and UV stabilizers for polypropylene was studied by compounding the stabilizers in PP or by screening expts. using soln.-impregnated filter paper and exposing the samples to NOx and observing discoloration of the dried samples. The best balance of properties. was obtained by using a combination of a gas fade-resistant antioxidant such as Irganox 1010, a high-performance tertiary amine such as Cyasorb CEC 3529, along with a nondiscoloring triazine type UV stabilizer such as Cyasorb UV-1164.

CC 37-6 (Plastics Manufacture and Processing)

ST polypropylene antioxidant UV stabilizer **HALS** interaction; **hindered amine** light stabilizer interaction

polypropylene

IT **Amines**, uses

RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
 (hindered; interactions and effectiveness of combinations of **hindered amine** light stabilizers and UV stabilizers and antioxidants for polypropylene)

IT Antioxidants

Discoloration prevention agents

UV stabilizers

(interactions and effectiveness of combinations of **hindered amine** light stabilizers and UV stabilizers and

antioxidants for polypropylene)

IT Polyamines
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(interactions and effectiveness of combinations of **hindered amine light** stabilizers and UV stabilizers and antioxidants for polypropylene)

IT Filter paper
(interactions and effectiveness of combinations of **hindered amine light** stabilizers and UV stabilizers and antioxidants for polypropylene in relation to screening tests conducted on)

IT Environmental pollution
(nitrogen oxide, discoloration agents; interactions and effectiveness of combinations of **hindered amine light** stabilizers and UV stabilizers and antioxidants for polypropylene)

IT **Polyesters, uses**
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(polyamine-; interactions and effectiveness of combinations of **hindered amine light** stabilizers and UV stabilizers and antioxidants for polypropylene)

IT Polyamines
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(**polyester-**; interactions and effectiveness of combinations of **hindered amine light** stabilizers and UV stabilizers and antioxidants for polypropylene)

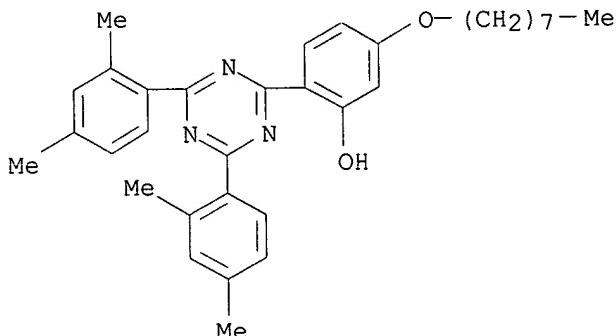
IT 11104-93-1, Nitrogen oxide, uses
RL: NUU (Other use, unclassified); POL (Pollutant); OCCU (Occurrence); USES (Uses)
(discoloration agents; interactions and effectiveness of combinations of **hindered amine light** stabilizers and UV stabilizers and antioxidants for polypropylene)

IT 1843-05-6 2725-22-6 3147-75-9 3864-99-1 6683-19-8
25973-55-1 40601-76-1 70198-29-7 71878-19-8 90751-07-8
106990-43-6 205132-52-1, Tinuvin 783 220525-76-8, Cyasorb CEC 3529
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(interactions and effectiveness of combinations of **hindered amine light** stabilizers and UV stabilizers and antioxidants for polypropylene)

IT 9003-07-0
RL: POF (Polymer in formulation); USES (Uses)
(interactions and effectiveness of combinations of **hindered amine light** stabilizers and UV stabilizers and antioxidants for polypropylene)

IT 2725-22-6 70198-29-7
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(interactions and effectiveness of combinations of **hindered amine light** stabilizers and UV stabilizers and antioxidants for polypropylene)

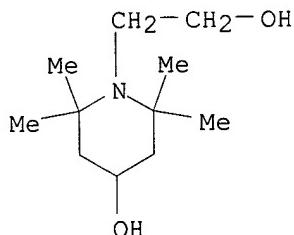
RN 2725-22-6 HCA
CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)-(9CI) (CA INDEX NAME)



RN 70198-29-7 HCA
 CN Butanedioic acid, polymer with 4-hydroxy-2,2,6,6-tetramethyl-1-piperidinethanol (9CI) (CA INDEX NAME)

CM 1

CRN 52722-86-8
 CMF C11 H23 N O2



CM 2

CRN 110-15-6
 CMF C4 H6 O4

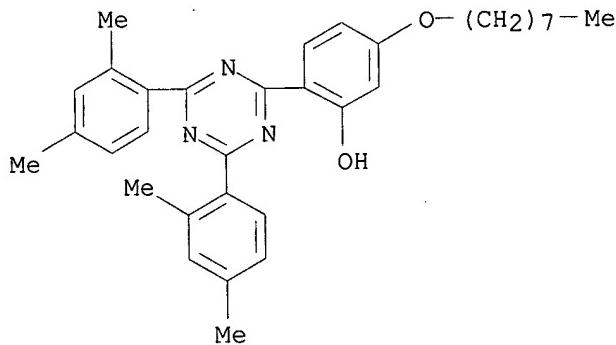
$\text{HO}_2\text{C}-\text{CH}_2-\text{CH}_2-\text{CO}_2\text{H}$

L59 ANSWER 11 OF 12 HCA COPYRIGHT 2003 ACS
 130:14960 Ultraviolet light-resistant urethane top coat for golf balls and prevention of discoloration and coated golf balls. Lutz, Mitchell E.; Hatch, William Ellis; Zanotti, Brian Louis (Acushnet Company, USA). U.S. US 5840788 A 19981124, 10 pp. (English). CODEN: USXXAM. APPLICATION: US 1997-879714 19970620.

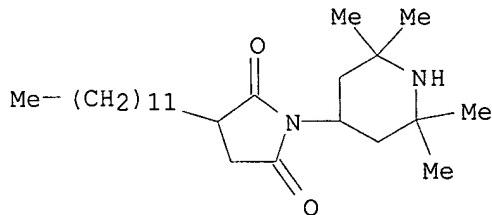
AB A UV light-resistant, visibly transparent, urethane golf ball topcoat compn., for use with UV curable inks, includes an optical brightener that absorbs at least some UV light at .gtorsim.350 nm and emits visible light, and a light stabilizer package. The light stabilizer package includes .gtoreq.1 UV light absorber and, optionally, .gtoreq.1 light stabilizer, such as a HALS, the UV light absorber absorbs at least some UV light at wavelengths .apprx.200-370 nm, and has an absorption peak at .apprx.330-360 nm and a UV light absorbance .gtorsim.3 times greater than the UV light absorbance at .apprx.370 nm. A urethane coating contg. Cyasorb 1164 3, Sanduvor 3055 1.5, and Uvitex OB 0.38%

additives showed brightness 92.11, yellowness (after 120 h UV exposure; ASTM D1925) -7.17; vs. 92.55 and -9.63, resp., using Tinuvin 328, Tinuvin 292 as stabilizers.

IC ICM C08K005-3415
 ICS C08K005-3477; C08K005-353; B05D001-36
 NCL 524095000
 CC 42-5 (Coatings, Inks, and Related Products)
 IT 2725-22-6, Cyasorb 1164 7128-64-5, Uvitex OB 79720-19-7
 , Sanduvor 3055
 RL: MOA (Modifier or additive use); USES (Uses)
 (UV-resistant urethane top coat for golf balls)
 IT 2725-22-6, Cyasorb 1164 79720-19-7, Sanduvor 3055
 RL: MOA (Modifier or additive use); USES (Uses)
 (UV-resistant urethane top coat for golf balls)
 RN 2725-22-6 HCA
 CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(octyloxy)-
 (9CI) (CA INDEX NAME)



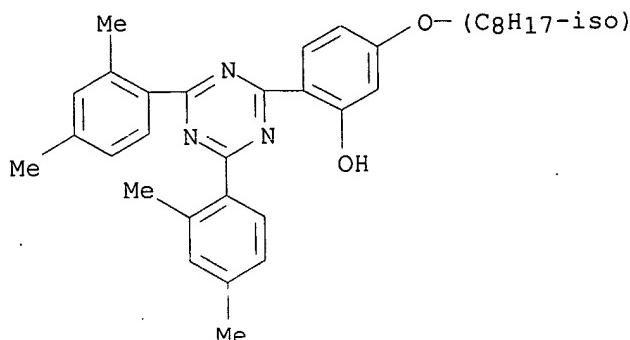
RN 79720-19-7 HCA
 CN 2,5-Pyrrolidinedione, 3-dodecyl-1-(2,2,6,6-tetramethyl-4-piperidinyl)-
 (9CI) (CA INDEX NAME)



L59 ANSWER ⑫ OF 12 HCA COPYRIGHT 2003 ACS
 129:344497 Interaction of photoreactive light stabilizers with UV absorbers.
 Avar, L.; Bechtold, K. (Clariant Huningue S.A., Fr.). Fatipec Congress,
 24th(Vol. D), D/65-D/86 (German) 1998. CODEN: FAPVAP. ISSN: 0430-2222.
 Publisher: Federation d'Associations de Techniciens des Industries des
 Peintures, Vernis, Emaux et Encres d'Imprimerie de l'Europe Continentale.
 AB Coatings, like all org. polymers, are submitted to photodegrdn. during
 their life time. To prevent or to retard this degrdn. often combinations
 of additives like UV absorbers and **hindered amine**
light stabilizers (HALS) are added. Bt these additives
 can migrate to the surface where they are exposed to phys. depletion.
 Addnl. they are themselves subjected to photodegrdn. With the
 introduction of photoreactive **hindered amine**

light stabilizers it is possible to fix the stabilizing mol. onto the polymer matrix. The present work describes the influence of the presence and type of UV absorbers on the photografting reaction. Photografting and photodegrdn. of 3 added UV absorbers (o-hydroxyphenyltriazine, o-hydroxyphenylbenzotriazole, and oxalanilide) are studied by monitoring the decrease of the UV absorbance in a clearcoat applied on quartz glass plates during accelerated weathering in a Weather-O-meter device.

- CC 42-5 (Coatings, Inks, and Related Products)
ST light stabilizer interaction clearcoat; UV absorber interaction
hindered amine
IT Acrylic polymers, uses
Polyurethanes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(clearcoats; **hindered amine light**
stabilizer-UV absorber interactions in)
IT **Light stabilizers**
(**hindered amines**; interactions with UV absorbers in
clearcoats)
IT **Amines**, uses
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(**hindered**, reactive; **light stabilizers**;
interactions with UV absorbers in clearcoats)
IT UV stabilizers
(interactions with **hindered amine light**
stabilizers in clearcoats)
IT Coating materials
(transparent; **hindered amine light**
stabilizer-UV absorber interactions in)
IT 79102-63-9 84268-22-4 **137759-38-7**
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(UV absorber; interactions with **hindered amine**
light stabilizers in clearcoats)
IT 41556-26-7 **79720-19-7** 215181-66-1
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(**hindered amine light stabilizer**;
interactions with UV absorbers in clearcoats)
IT **137759-38-7**
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(UV absorber; interactions with **hindered amine**
light stabilizers in clearcoats)
RN 137759-38-7 HCA
CN Phenol, 2-[4,6-bis(2,4-dimethylphenyl)-1,3,5-triazin-2-yl]-5-(isooctyloxy)-
(9CI) (CA INDEX NAME)



IT 79720-19-7

RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(**hindered amine light** stabilizer;
interactions with UV absorbers in clearcoats)

RN 79720-19-7 HCA

CN 2,5-Pyrrolidinedione, 3-dodecyl-1-(2,2,6,6-tetramethyl-4-piperidinyl)-
(9CI) (CA INDEX NAME)